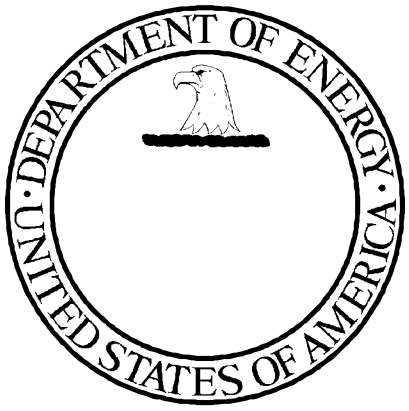
DEPARTMENT OF ENERGY
UNITED STATES OF AMERICA

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PART I

TRANSPORTATION MANAGEMENT ACTIVITIES OF THE U.S. DEPARTMENT OF ENERGY AND ITS CONTRACTORS

CHAPTER 1

REGULATION

1.1 BASIS FOR REGULATION

The legal system of the United States is based on a combination of two historic forms of law, common and statutory. British common law is based on precedent, the study of previous court decisions. Statutory law is based on the Roman system in which laws are written and enacted by legislature. Historically, these two combined forms have shown themselves to be subject to broad interpretation by U.S. courts at all levels.

1.2 BASIS FOR REGULATION OF TRANSPORTATION

Article 1, Section 8, Clause 3, of the United States Constitution gives the Federal Government the right to regulate transportation. "The congress shall have the power to regulate commerce with foreign nations, and among the several states and with the Indian tribes."

Between 1871 and 1874 states passed a series of "Granger laws" that established a state's right to regulate transportation. These laws were specifically aimed at controlling the rail monopoly and ending discriminatory practices by railroads. In Munn v. Illinois (1887) the Supreme Court ruled that states had the right to regulate industries that "affected the public interest" and stated that transportation traditionally fell into that category. However, in Wabash v. U.S. (1886), the Court ruled that states could not regulate interstate commerce, stating "The welfare of interstate commerce cannot be left at the mercy or the whim of any state which might penalize or burden the commerce of the others." The rulings gave the states the authority to regulate intrastate commerce and forced the Federal Government to take action to regulate interstate commerce.

1.3 HISTORY OF TRANSPORTATION REGULATION

The Act to Regulate Commerce was signed into law on February 4, 1887. This act created the Interstate Commerce Commission (ICC), now called the Surface Transportation Board (STB), the ruling body over surface transportation for more than 100 years. Answering directly to Congress, the five-member ICC initially had very little authority, but the passage of numerous amendments between 1887 and 1920 gave the commission broad executive, legislative, and judicial powers. Growing to eleven members at its peak and gaining additional powers under the Transportation Act of 1920, the ICC entered a period of strict regulation from the 1930's through the 1970's. Other forms of transportation were also regulated during this period. The railroads became Part I of the Transportation Act; the Motor Carrier Act of 1935 became Part II; the Water Carrier Act of 1940 became Part III; and the Freight Forwarder Act of 1942 became Part IV. Additionally, regulation of airlines came in 1938 with the Civil Aeronautics Act and the establishment of its ruling body, the Civil Aeronautic Board (CAB).

Based on a desire to let competition and market forces regulate transportation rather than the strict letter of the law, Congress passed a series of deregulation acts beginning with the Airline Deregulation Act of 1978, the Motor Carrier Act of 1980, the Staggers Rail Act of 1980, and the Surface Freight Forwarder Deregulation Act of 1986.
The Negotiated Rates Act of 1993 (NRA) was passed to correct inequities and misconceptions

arising out of the Motor Carrier Act of 1980, particularly with respect to the filed rate doctrine. After negotiating rates directly with customers, carriers often failed to file the rates with the ICC as required. With many carriers going bankrupt, court-appointed attorneys initiated millions of dollars in undercharge actions against customers to collect the difference between the negotiated rates and the legal rate on file with the ICC. The Negotiated Rates Act supported the concept of the filed rates doctrine, spelling out, among other things, carrier and customer rights and time tables for the settling of undercharge claims. These rules for settlement remain in effect despite passage of subsequent acts.

The Trucking Industry Regulatory Reform Act of 1994 (TIRRA) was passed to "...enhance competition, safety, and efficiency in the motor carrier industry and to enhance efficiency in government." TIRRA eliminated the concept of the filed rate doctrine in favor of individually determined rates. Except for household goods carriers and property carriers shipping via motor-water (between Alaska, Hawaii, and US territories and possessions), carriers are no longer required to file individually negotiated rates with the ICC (STB). Carriers also need not file rules, practices, or classifications; nor is a carrier required to give advance notice prior to a rate change. Without protection of the filed rate doctrine, the freight invoice becomes the defining legal document for transportation charges. To protect the DOE from over/under charges, the appropriate Tender Number, at a minimum, must appear on the invoice, and preferably all charges, complete with extensions.

Additionally, the Airport Improvement Act of 1994 deregulated intrastate trucking. No state may impose entry, rate, route, or service regulations on carriers operating within its borders. Carriers still must have legal operating authority and be subject to insurance and safety requirements for individual states.

On January 1, 1996, the Interstate Commerce Commission ceased to exist as an independent agency of the Federal government. The Surface Transportation Board (STB), a part of the Department of Transportation, was established to assume all functions previously executed by the ICC except as otherwise provided in the ICC Termination Act of 1995, which is basically Railroad and Household Goods policy and related activities.

The STB consists of three members appointed by the President with advice and consent of the Senate. STB members will serve five year terms. With the termination of ICC, there will no longer be a body to monitor and advise regarding carrier contracting. The STB provides guidance relative to motor carrier contracting. This information along with shipper bill of lading and rail contracts is found in Appendix M of the TOM.

It is clear that government and industry are moving away from regulation. While the new environment puts equal responsibility on the carrier and the shipper, it is the shipper, without the protection of government, who must shoulder the greater burden. Without protection of government, the shipper must have a better understanding of the regulations and a good working knowledge of the carrier, from operations, to financing, to rate filing. For self-protection the rule of the day has become, ***get it in writing*.**

1.4 HISTORY OF DEPARTMENT OF ENERGY AUTHORITY

The Department of Energy (DOE) derives its authority from a series of statutes dating back to the Atomic Energy Act of 1946. DOE was established as the Manhattan Engineer District of the U.S. Army Corps of Engineers in 1942 to manage the development of the atomic bomb. Congress passed the Atomic Energy Act of 1946 which created the Atomic Energy Commission (AEC) and placed U.S. nuclear weapons development under a civilian agency. The 1946 Act was superseded by the Atomic Energy Act of 1954 which is still in force, as amended, today. Over the years the AEC was also responsible for naval reactor development and electrical power production. In 1975 Congress replaced the AEC with two agencies, the Nuclear Regulatory Commission (NRC), created to regulate the nuclear power industry, and the Energy Research and Development Administration (ERDA), created to manage nuclear weapons, naval reactor, and energy development programs. Congress passed the Department of Energy Organization Act in 1977 to replace ERDA and create a cabinet level department including, among other agencies, the Federal Energy Administration, the Energy Research and Development Administration, and the Federal Power Commission.

Today, the Department of Energy has four distinct missions:

- Energy: To increase energy choices for all consumers, assure adequate supplies of conventional energy; reduce U.S. vulnerability to external events; encourage efficiency and conservation; and promote research in alternative and renewable energy technologies.

- Defense: To maintain the capability for the safe, reliable, environmentally sound production, stockpiling, and destruction of nuclear weapons and to support non-proliferation activities.

- Cleanup and Waste Management:

  To provide safe, long-term resolution of the defense waste problem, restore environmental integrity at DOE sites, and instill public confidence in waste management programs.

- Science, Technology, and National Labs:

  To better use the unique resources of the national laboratories in support of U.S. defense security, economic competitiveness, and quality math and science education in our schools.

1.5 REGULATORY DRIVERS

In addition to DOE Orders, transportation logistics is subject to a wide range of regulation from other Federal agencies. Listed in Appendix B are various Acts, Orders, and Regulations, including their titles, a short description, and the issuing agency, that effect transportation. Column 1 identifies where the complete text of the citation, regulation, or Order can be found.

Federal regulations and statutes carry the force of law and can result in both civil and criminal penalties, depending if the illegal act was committed willfully or in ignorance. Two things to

remember: ignorance is no excuse and the individual as well as the company are liable for monetary fines and imprisonment. Some regulations include 49 Code of Federal Regulations (CFR) for the Department of Transportation (DOT), 10 CFR for the Nuclear Regulatory Commission (NRC), and the Price Anderson Amendment Act.

DOE Orders, where applicable, do not govern conduct of persons outside of the DOE and its contractors. DOE Orders do not impose civil or criminal penalties for violations of the Order; however, contractors may be held in breach of contract for violations of an Order. DOE Orders, negotiated into a contract, impose requirements upon DOE elements and contractors in addition to those requirements applicable by law or regulation. However, with the Department's re-engineering comes many changes in how DOE conducts business in the future. Work Smart (Necessary and Sufficient) Standards have a major impact on how contracts are negotiated and administered within the DOE complex.

There are unlimited resources and reference materials available through the internet. Much of the information referenced in this document was obtained through the world wide web. Following are just a few sources and their locations on the web.

DOE Orders, related documents, directives, and guidance documents are at **http://www.explorer.doe.gov**

Code of Federal Regulations are at **http://frwebgate1.access.gpo.gov**

US Department of Transportation is at **http://www.dot.gov**

US Customs information and forms relative to import/export are at **http://www.customs.ustreas.gov/impoexpo/impoexpo.htm**

Surface Transportation Board (STB previously ICC) is at **http://www/stb.gov**

Federal Acquisition Regulations and Department of Energy Acquisition Regulations are at **http://www.access.gpo.gov**

US Department of Energy is at **http://www.doe.gov**
or **http://home.doe.gov/**

US Department of Energy Environmental Management is at **http://www.em.doe.gov**

US Department of Energy Office of Transportation and Emergency Management is at **http://www.em.doe.gov/otem.**

US Department of Energy National Transportation Program is at **http://www.ntp.doe.gov/**

To access information regarding the DOE report Recommendations for Meeting Department of Transportation Requirements for Strong and Tight Containers and Industrial Packaging, go to **http://www.em.doe.gov/llw/package.html**

National Transportation Program Fact Sheets are at: **http://www.ntp.doe.gov/infoaval.html**

Import/Export information can be located at: **http://www.census.gov** and click on Foreign Trade.

SUMMARY

Transportation logistics within the DOE complex are influenced by regulations of many other Federal agencies, state and local laws, tribal laws and ordinances, and input from a wide range of stakeholder groups. The Department is committed to safe, efficient, economical, and lawfully compliant transportation of all material, with special emphasis on the safety of its employees, the general public, and the environment.

CHAPTER 2

CUSTOMER INTERFACE

2.1 Introduction

The importance of knowledgeable, accurate customer interface in transportation logistics cannot be overemphasized. From initial contact with the shipper or end-user through the final steps of the billing process, the accurate, timely transmission of information is important þ from cost savings/avoidance and profitability to customer satisfaction. This interface applies within the DOE complex in working with customers, procurement, transportation, and accounting, as well as manufacturers, vendors, suppliers, and carriers serving the DOE.

2.2 Customer Identification

What is a customer? The word customer is defined as a person or organization requiring your service(s).

Transportation logistics personnel within the DOE complex are often in a unique and highly responsible position because they may interface not only with purchasers and shippers, but also procurement and accounting departments as customers, while participating as a customer to suppliers and carriers þ all during a single shipment activity.

Two important aspects of transportation logistics are maximizing cost savings/avoidance and providing customer satisfaction. Getting all the necessary information and getting it right the first time is essential.

In the final analysis, the DOE is the contractor's customer þ an important point to remember.

2.3 SHIPPING PRACTICES

To respond effectively to the internal customer, it is critical to ask appropriate questions about an impending shipment. The following checklist (Table 2.1) is important to have on hand when asking a non-transportation person about a shipment.

Table 2.1 - Shipping Checklist

Ask Customer About	Check
Origin and destination	
Shipper (Consignor) name and address	
Receiver (Consignee) name and address	
Date of shipment	
Customer reference number	
Routing preference	
Description of commodity	
Size and shape of article	
Number of pieces of each commodity	
Weight of each commodity type	
Piece count and total weight of shipment	
Type of packaging to be used	
Average Weight	
Density per cubic foot	
Susceptibility to damage	
Special marks or exceptions	
Modal selection	
Carrier selection	
Type of carrier equipment required	
Special services incident to shipment (rigging, attendants, etc.)	
Estimated volume of this and future movements	
Regularity of movement	
Value of packaged material or released value	
Billing instructions	
Other information as needed to accomplish a proper movement and delivery to consignee	

2.4 PACKAGING

Packaging performs four basic functions: protection against environment (such as weather or shipping and handling), containment, information, and utility of use. The optimum cost and functional properties of any package are related to the contained product. Even slight product variations can create the need for major packaging changes.

A packaging should be designed to protect material from shock and vibration existing in a particular environment. The required degree of protection should be provided with minimum packaging; low transportation costs should be obtained by the best combination of labor, materials, volume, and weight.

The package designer's objective is to design a packaging at minimum cost, resulting in minimum weight and cubic displacement and providing protection for the material. In general, a packaging must be designed for shipment by truck, air, or stowage on a vessel. The packaging must then be designed for the following:

- Handling by hand, hand truck, forklift, slings, or skidding
- Exposure to the environment, e.g., temperature, humidity, or airborne contaminants (rain, snow, salt)
- Acceleration forces (e.g., dropping, stopping, de-acceleration, vibration)
- Physical damage (dropping, top loading, stacking, skidding, puncturing).

Improper packaging can result in programmatic impact, customer dissatisfaction, lost business, and added cost to repair or replace damaged products. The optimum package design is accomplished best through joint efforts.

The packaging designer must be aware of a product's fragility limits, structural strength, and center of gravity, while the product designer must be aware of the magnitude and intensities of shock and vibration that the product may receive in transportation and handling.

Excellent reference material regarding packaging is available from Military Specifications, the U.S. Department of Agriculture, the American Plywood Association, and American National Standards Institute-American Society of Mechanical Engineers (ANSI-ASME) Standards. DOE published a document titled "*Recommendations for meeting Department of Transportation Requirements for Strong and Tight Containers and Industrial Packaging" dated April, 1998.* A copy of this document is located on the DOE Website.

2.4.1 PACKAGING NONHAZARDOUS MATERIALS

Most domestic freight is packaged in fiberboard boxes. Basic information on packaging various commodities can be found in the packaging section of the National Motor Freight Classification (NMFC) (latest edition, ICC NMFC 100-Y, effective 28, Sept. 1998). One rule specifies that the type of box be determined by a pressure test. This test, the Mullen or "Cady" Test, subjects a square-inch sample of box stock to pressure until the sample bursts.

Table 2.2 - (Abbreviated) Mullen Test Data

Gross wt of pkg ready for shpt. (lb)	Size limits inside L+W+D (in.)	Mullen Test single wall up to at least (lb)	Mullen Text double wall up to at least (lb)
20	40	125	-
4,060	175	-	-
6,575	200	-	200
9,090	275	-	275
12,000	-	-	350
14,010	-	-	350

L = Length
W = Width
D = Depth

There is a formula where an article weighing less than the listed gross weight can be packed in a carton larger than the maximum shown in column 2 for that weight bracket.

When the term fiberboard is used, it may be solid or corrugated board. This illustration concerns only corrugated.

The construction of corrugated consists of liner boards, corrugated mediums, and adhesive. The corrugated medium is referred to as "flute" with various heights and number of corrugations per foot. There are three standard flute specifications:

"A" Flute 3/16 inches high with about 36 corrugations per foot
"B" Flute 1/8 inches high with about 50-52 corrugations per foot
"C" Flute 5/32 inches high with about 42-44 corrugations per foot

Double-wallboard is available in double the flute or a combination of flutes.

Each article listed in the NMFC carries a general packaging requirement, such as "in boxes or crates," or "in bundles;" or a specific package requirement, such as "in Packages 911 or 2176." Each type of package is explained in detail in the classification. Some alternate forms are allowed.

2.4.2 PACKAGING HAZARDOUS MATERIALS

Packaging of hazardous materials is strictly regulated. Hazardous material packaging is defined and identified in 49 CFR and outlined in Part II, Section 10 of this manual, "Hazardous Material Packaging".

2.4.3 MARKING OR TAGGING OF FREIGHT

The NMFC contains a diagram showing recommended marking locations on various types of packages. General commodity material package markings are not to be confused with DOT marking requirements for hazardous material packages. Refer to Part II, Chapter 10 for additional information on DOT marking requirements.

2.5 TERMS OF SALE

Transportation terms under which products or materials are purchased or sold determines the following:

- The term F.O.B. (Free On Board). Defined as the point where title to the goods passes from seller to buyer.
- Who has title to the goods is responsible for transit loss and/or damage (F.O.B. Origin (point of shipment), or F.O.B. Destination (point of delivery).
- Who pays the freight bill on a particular shipment (PREPAID or COLLECT).

For best possible control, every order should specify terms of sale, freight terms, and routing. Transportation terms appearing on contractor purchase orders generally contain the following elements:

- Designation of F.O.B. point governing passage of title
- Designation of who pays transportation charges directly to carrier (collect or prepaid).
- Designation of who ultimately bears transportation charges (i.e., freight allowed, not allowed, etc.).

The following Chart of Freight Terms indicates the most common combinations of delivery terms, billing, routing, and responsibilities of buyer and seller in each instance.

Table 2.3 - Chart of Freight Terms

Domestic		
Terms of Sale	**Seller**	**Buyer**
(1) FOB ORIGIN, FREIGHT COLLECT (Title passes when carrier signs B/L).	■ No Obligations	■ Pays freight charges ■ Bears freight charges ■ Owns goods in transit ■ Files all claims
(2) FOB ORIGIN, FREIGHT PREPAID (Title passes when carrier signs B/L).	■ Pays freight charges ■ Bears freight charges	■ Owns goods in transit ■ Files all claims
(3) FOB ORIGIN, FREIGHT PREPAID AND CHARGED BACK (Title passes when carrier signs B/L).	■ Pays freight charges ■ Bills freight on invoice	■ Bears freight charges ■ Owns goods in transit ■ Files all claims
(4) FOB DESTINATION, FREIGHT PREPAID and ADD (Title passes when carrier delivers shipment).	■ Owns goods in transit ■ Files all claims	■ Pays freight charges ■ Bears freight charges
(5) FOB DESTINATION, FREIGHT PREPAID (Title passes when carrier delivers shipment).	■ Pays freight charges ■ Bears freight charges ■ Owns goods in transit ■ Files all claims	■ No obligations
(6) FOB DESTINATION, FREIGHT COLLECT AND ALLOWED (Title passes when carrier delivers shipment).	■ Bears freight charges ■ Owns goods in transit ■ Files all claims	■ Pays freight charges ■ Deducts freight from invoice

2.5.1 DOE-PREFERRED TERMS OF SALE

With only minor exceptions (those that apply generally to very expensive items and items highly susceptible to damage), DOE prefers that domestic freight move *FOB Origin/Freight Collect.* As explained in the Chart of Freight Terms, this indicates that DOE takes title to the goods at origin and DOE pays the freight. The primary reason for shipping under these terms is to maximize transportation dollars. Maximum cost savings/avoidance is accomplished by taking title at origin and claiming the right to select the DOE carrier of choice, and by opting to pay the negotiated freight charges. These steps maximize freight volume and allows the DOE to negotiate favorable national transportation rates with select carriers. While manufacturers and suppliers also negotiate favorable carrier rates, they are not required to (and often don't) pass along these savings to DOE. Title 41 Code of Federal Regulations, *Public Contracts and Property Management,* Section 109-40 establishes requirements for obtaining lowest overall delivered cost to the government. Section 3.1 of the TOM explains this in depth. Some contractors procure materials using the credit card procurement method. However, this must be carefully monitored to ensure against abuse and excessive freight costs to DOE. Use of prepaid envelopes offered by express air carriers is another option for contractors and can provide additional savings for certain shipments. There are limitations and restrictions that the contractor must be aware of to take advantage of this method of shipping. Carriers will provide this information.

2.6 RESPONSIBILITIES OF TRAFFIC PERSONNEL

A typical logistics job description will include the following duties:

Traffic Support Services

- Provide transportation cost/logistics analysis to purchasing for bid evaluations and order quantities.
- Trace and expedite urgent, lost, or late sensitive shipments.
- Carrier evaluation and selection, route shipments.
- Review/approve terms of sale affecting transportation services.
- Inspect material for damage, file loss or damage claims when appropriate, promote claims prevention and mitigate claims.
- Review or assist in the review of freight charges on carrier bills and/or vendor invoices.
- File overcharge claims/correct carrier billings prior to payment.
- Advise on carrier liability and insurance and government self-insurance policy.
- Arrange credit and average demurrage agreements with carrier.
- Interpret hazardous materials regulations regarding documentation, packaging, transportation, and receiving of hazardous goods and provide or assist in providing training in those regulations and "right-to-know" requirements.
- Assist in negotiation of freight rates, transportation contracts, and transportation services.
- Supervise or assist in development of administrative controls governing the distribution of hazardous goods onsite.
- Input transportation cost data for budgeting purposes.

- Input data to the Automated Transportation Management System/Enterprise Transportation Analysis (ATMS/ETAS) Systems and the Prospective Shipments Module (PSM) to obtain/provide and/or issue reports.
- Clear imported goods through customs and determine duty/duty-free status.
- Plan, with industry and stakeholder participation, to ensure that an adequate base of transportation services exists to support present and future programs.
- Provide monitoring of transportation industry trends to advise upper management of potential impacts of changes in industry services, regulations, and cost structure.
- Assist in transportation fleet equipment maintenance and Commercial Drivers License (CDL) programs.
- Provide or assist in providing and promoting development of hazardous materials regulations training.
- Order or review specifications for and inspect condition of truck and rail equipment.
- Arrange for physical protection of shipments as necessary.
- Apply for, assemble, and/or prepare export documentation.
- Coordinate loading arrangements (including oversize loads requiring special equipment) and inspect tie down procedures.
- Coordinate acquisition of transportation services for freight.
- Direct or assist in preparation of transportation shipping papers and documentation records.
- Arrange transportation for employee household goods moves.
- Make travel arrangements for personnel.

CHAPTER 3

MODE/CARRIER SELECTION

3.1 MODAL CHARACTERISTICS AND SELECTION

Department of Energy Property Management Regulations (DOE-PMR) 41 CFR 109-40.302, "Standard Routing Principle," provides that shipments shall be routed using the mode and carrier that can provide the required service at the lowest overall delivered costs to the Government. Several DOE field operations offices and contractors have negotiated reduced rates and have selected carriers based primarily on this authority. Other criteria for carrier selection may be found in 41 CFR 109-40.103.

Selection of the most appropriate mode of transportation and as well as the best-suited carrier within that mode are important considerations in meeting customer needs while providing safe, efficient, cost effective, and regulatory compliant transportation.

The first step in mode selection is comparison of basic characteristics of the various modes based on specific need. These characteristics are accessibility, transit time, capacity, claim history, service, and cost.

Table 3.1 compares basic characteristics of the four modes commonly serving the DOE.

3.2 CARRIER SELECTION WITHIN A MODE

Once the appropriate mode of transportation has been determined, the choice of carrier within that mode must be decided. Following is a brief description of the *service* characteristics within the various modes.

When selecting a carrier, address the following concerns:

- Carrier capability (such as authority, service area, insurance)
- Carrier performance record
- Transit time
- Equipment requirements
- Site preference
- Specialty services

3.2.1 Motor Carriers

Motor carriers can be for-hire or private. For-hire carriers can be common or contract. Common carriers, both Less-Than-Truckload (LTL) or Truckload (TL) are generally available and on call to anyone. Contract carriage is carriers transporting LTL and TL loads under contract for specific customers. Private carriers include corporate fleets hauling finished products of that company outbound and often bringing in required raw materials on the return trip. Both contract and private carriers (which also hold for-hire authority) may be open to back hauling compatible commodities in cases where deadhead mileage is a problem. Refer to the Glossary in Appendix J for additional information.

Table 3 - Modes of Transportation

Advantages/ Disadvantages	Rail	Water	Air	Motor
Entry and Operating Costs	■ High cost of startup and maintenance	■ High cost of vessels but low operating cost	■ High cost of equipment and operation	■ Moderate cost of equipment and operation
Accessibility to Customer	■ Limited to right-of-way ■ Geographic limits with interline to other railroads	■ Limited to water access ■ Coastal/ inland	■ Access limited to airports	■ Access to nearly any location
Speed	■ Slow, except dedicated trains	■ Slow	■ Fast and reliable ■ Best long haul transit times	■ <Under 500 miles truck is fastest ■ Reliable ■ Good long haul transit times
Carrying Capacity	■ Large quantities of heavy weight ■ Bulk ■ Shipper loaded cars and containers	■ High volume of bulk commodities ■ Shipper loaded containers	■ Aircraft type dependent ■ Mostly under 500 lbs ■ Shipper loaded containers	■ The best up to about 30,000 lbs ■ Shipper loaded trailers
Susceptibility to Cargo Damage	■ High percentage of transit damage	■ Moderate damage subject to heavy weather and numerous handlings	■ Moderate damage ■ Smoother ride but numerous handlings	■ Low percentage of transit damage
Service Flexibility	■ No door-to-door service except shipper loaded containers/ trailers ■ LTL not cost effective	■ No door-to-door except shipper/ forwarder loaded containers	■ Fixed terminal-to-terminal ■ Some door-to-door	■ Wide flexibility of services and access to customers
Comparative Freight Costs	■ Low cost	■ Lowest cost	■ High cost	■ Moderate cost

Most commodities can be

airlines, cargo-only airlines, air freight forwarders, and small package express companies.

Most major airlines offer cargo services, as do the cargo-only airlines. Both are equipped to handle large and small shipments þ some as large as 40-foot containers. Like motor carriers, these cargo-only airlines offer discounts for large volumes or large shipments moving on a regular basis between specific points.

Air freight forwarders specialize in consolidating many small shipments, primarily between major points, at rates lower than the Less-Than-Containerload (LCL) rates of the major airlines. This is usually a Through Bill of Lading service offering pick up and delivery as part of the rate. Most large forwarders offer international service and many operate their own aircraft fleets.

DOE contracts for air express and small package service. It is important to know who current contractors are and how to use their services in order to control cost. The key to cost control is knowledgeable comparison of services offered and accurate execution of documentation. Instructions for proper execution of documentation are found in Chapter 5, "Documentation". Rules for shipment of hazardous materials vary greatly between carriers, and shippers must be fully aware of all requirements. DOE requires air express service be reduced to a minimum. Because these services are the fastest increasing transportation costs in the DOE, most sites have instituted required authorizations for their use. Approximately 70% of DOE air shipments are documents. DOE also utilizes GSA contract rates when it is more advantageous to the Department.

Under existing Private Express Statutes (39 CFR 320.6), the U.S. Postal Service (39 CFR) must be used for all first class mail except in cases requiring a signature on delivery or an immediate response. Although Congress is addressing the issue of conflict of interest between the U.S. Post Office and private carriers, not even the Postal Service really expects to put the express mail carriers out of business. ATMS contains data relative to use of FedEx and other express carriers but does not detail use of UPS or USPS. Some sites enter UPS for tonnage purposes only. Since US mail has no “freight bill” associated with postal deliveries it would not be feasible to enter into ATMS.

3.2.4 Water

Some DOE sites such as Strategic Petroleum Reserve, Savannah River and Hanford, are served by domestic water transportation service. Domestic water transportation falls under the Merchant Marine Act of 1920 (46 U.S.C. 883), commonly referred to as the Jones Act. This and other maritime acts (46 U.S.C. 289) require domestic-owned vessels to perform interport water transportation services; these acts are enforced by the U.S. Customs Service and the U.S. Coast Guard. Specifically, the Jones Act states that any vessel participating in the U.S. domestic trades must be American owned, must be manned by U.S. officers and crew, and must be registered, as well as built, in the United States.

Involvement of transportation logistics personnel knowledgeable in this field is vital, as penalties imposed for violating coastwise shipping laws can include forfeiture of merchandise and monetary fines.

3.3 CARRIER SELECTION FREIGHT PRICING

Class, Commodity, Exception Rates, and Ratings

Historically, a section on freight pricing would generally have lengthy explanations on subjects of classification and rating, with references and cross-references to different motor, rail, air, steamship, and rate bureau tariffs. Deregulation and computerization have done much to simplify freight pricing with most carrier rates reduced to a single sheet of paper or a computer disc for medium-to-large volume customers (DOE is a large volume customer). Prior to the ICC Termination Act of 1995, deregulation allowed the carrier to negotiate directly with the customer and to file the agreed rates with the ICC. The newly established Surface Transportation Board (STB) assumed the majority of ICC functions. It is the responsibility of the shipper to ensure that negotiated rates are documented (***GET IT IN WRITING***) and kept on file since they are no longer filed with the STB. Computerization and Electronic Data Interchange (EDI) have simplified and standardized freight classification, rating, and billing.

Motor carrier commodity rates apply on a specific commodity or a group of related commodities to and from specific origins and destinations. Most rail traffic moves on commodity rates expressed in tariffs or contracts. At one time most of the transcontinental LTL truck traffic moved under Commodity Group Number (CGN) column rates. CGN columns were substantially lower than LTL class rates. Since deregulation, motor carriers have thinned out their commodity rates, in favor of discounted class rates for tariff simplification. Most air express rates, such as Airborne and FedEx GSA negotiated rates are based on weight only. These rate structures handle fully 90% of all DOE air traffic. Some heavy weight air rates are based on distance and weight and vary from carrier to carrier, but normally are contained in a tariff consisting of less than 5 pages.

Exception rates are similar to commodity rates and apply to specific commodities, and may apply only within a certain territory. Exception ratings are usually published in rate tariffs and can be lower or higher than class rating. Motor carriers can depart from the published classification ratings whenever the item being shipped has better (or worse) characteristics than the industry-wide average on which the classification rating was based.

Released Valuation Ratings

The Motor Carrier Act of 1980 prohibits motor carriers from collectively setting released-value classifications; but individual carriers can, and do, offer lower released-value classifications in exchange for lower liability. Contractors are cautioned not to negotiate lower rates based on zero-released value, which would absolve the carrier of any liability for damage in transit. Some reasonable minimum should be established based on the susceptibility of the commodity to damage. Reference DOE Order 460.2, Implementation Guide 3.1.5. The National Motor Freight Classification Rules, Item 172 addresses carrier liability limitation where a released value is not declared by the shipper for specified items and 49 CFR Part 1005, which governs claims actions.

3.4 FILING RATES WITH THE DOE

Specific carrier rates for the transportation of material for DOE are filed in different ways for different modes of transportation. These are known as rate and rule tenders:

- Motor and Rail Carrier - DOE negotiates national rates on behalf of its contractors. Motor carrier tenders are called Section 13712 and Rail tenders are called Section 10721. These tenders are negotiated every 3 years and distributed to identified DOE contractors and maintained by the National Transportation Program in Albuquerque, NM. Local and regional carrier negotiations and record maintenance are the responsibility of individual site contractors and the Traffic Management Council. Refer to Section 5.3 for additional information on tenders.

- Air Freight Rates - As an unregulated industry, air freight rates (including small package express) are negotiated with the individual or various sites and simply presented as rate sheets without being required to file them with a federal agency.

- Water rates are filed with the Federal Maritime Commission (FMC). The ocean freight carrier must have a tariff on file with FMC. See Section 3.2.4, "Modal Characteristics and Selection", for additional requirements for shipping domestically by water.

- Volume rates for specific commodities, such as the movement of coal by rail, are negotiated directly with the DOE and need not be filed with a federal agency.

- DOE and its contractors may also participate in contract rates negotiated with carriers by the General Services Administration (GSA), as well as corporate or regional and local rates negotiated with carriers by the various M&O contractors.

3.5 CARRIER NEGOTIATION

Economic deregulation of the motor carrier industry allowed carriers substantial new pricing freedoms that provide shippers with opportunities to reduce transportation costs. In the past, most motor carrier rates were published in bureau tariffs. While bureau tariffs have not been abandoned, there has been a proliferation of other types of rate publications. They include contracts or special tariffs aimed at one or a few shippers and independently published tariff schedules directed at a large number of shippers.

A typical request for quotation consists of the following:

- Rationale for the request for quotation and carrier selection
- Revenue or tonnage history, prepaid and collect, for a given period of time by traffic lane or region and the prospective carrier(s) share during that period
- Projected revenue or tonnage available to successful carrier(s) by traffic lane or region for the term requested
- Request for carrier viability, insurance, safety rating, or annual report from successful carrier(s)
- Miscellaneous - hazardous materials, included/not included
    - rail rates and motor carrier rates are maintained by DOE and its contractors.

Normally, carriers do not request a breakdown of commodity mix or claims experience since

this information is available in their own records. Contractors who have used this method have been successful in obtaining very attractive Freight All Kinds (FAK) rates, usually at a high percentage off Class 50 rates. Carriers extend this rate level to shippers or receivers, such as the DOE, where the right set of competitive conditions exist. Smaller shippers are also able to avail themselves to FAK rates.

The same method can be used for negotiating regular movements of outbound truckload freight. Casual (occasional) volume movement can be negotiated individually with a common carrier, contract carrier, or brokerþon short notice, making sure that the carrier is qualified, has adequate insurance, and accepts common carrier liability. NOTE: Brokers have no common carrier liability. They only arrange freight movements.

Volume rates have been negotiated for some time across the DOE complex. Various sites have used General Service Administration (GSA) rates, corporate rates (of the Management and Operations (M&O) contractors), and DOE-negotiated rates. Each site may have different rates, requirements, service, and carriers. With development of the Automated Transportation Management System (ATMS), DOE has adopted a rate structure based on the Southern Motor Carrier Tariff Bureau as the standard. Carriers wishing to do business with the DOE must meet these rates and requirements and submit to an evaluation under the Motor Carrier Evaluation Program (MCEP) for ***specific*** DOE shipments. A description of the MCEP is in Appendix F and the ATMS program description is in Appendix E of this manual.

Negotiations With the Railroads

Success of rail rate negotiations typically hinges on competitive factors. Competitive access by other railroads or motor and water carrier competition are the best sources of leverage when conducting negotiations with railroads. Government oversight of rail rates can occur when market dominance of the railroad can be established. This is difficult to prove. Rail classification, rules, and practices are also subject to reasonableness oversight by the STB. Railroads should be contacted to publish single or multi-car movements to avoid higher class or commodity rates which exist as a benchmark.

Intermodal rate quotations are generally obtained from either rail or motor carriers serving a particular DOE site. Most intermodal shipment negotiations are handled on an individual shipping campaign basis because many factors influencing pricing of intermodal shipments cannot be generalized sufficiently to negotiate a national pricing agreement. Site specific considerations such a loading/unloading facilities, carrier service options, and bargaining unit work rules significantly increase the level of difficulty in obtaining nationally discounted pricing for this type of shipment.

Unpublished Rates - Pitfalls

For a number of years, shippers have been receiving balance-due bills from trustees of bankrupt carriers for prior shipments (commonly referred to as undercharges). In these cases, the carrier quoted and billed on discount rates but failed to file them with the ICC. The authority for collecting these undercharges was called the “filed rate doctrine”. This doctrine

had been imbedded in the Interstate Commerce Act since 1887. A reduction in the statute of limitation from 3 years to 18 months, and passage of the Trucking Industry Regulatory Reform Act of 1994, eliminating the filed rate doctrine for individually published motor carrier tariffs has extinguished most undercharge claims. However, a new breed of balance due claims has arisen. Many carriers publish a rules tariff containing certain provisions which may not be known to shippers. These rules include provisions like late payment penalties and freight density minimum charges which can result in balance due freight charges to the unsuspecting payer. Since the tariff is a unilateral price and rule offering, the carrier can also change provisions without notifying the shipper. Do not allow references to tariffs in tenders and contracts which are unknown or could be changed without your knowledge.

DOE contractors may participate in negotiated carrier rates for shipments that will be reimbursed by the Department as long as all shipping documents indicate that shipments are being made *"for USDOE" or "in care of USDOE"*. This will also assist in eliminating legal problems for contractors in the event of balance due billings or carrier bankruptcies. This requirement is located in 41 CFR 109-40. Requirements regarding transportation insurance are found in Title 48 CFR Part 47, Subpart 47.102.

3.6 DEMURRAGE AND DETENTION OF CARRIER EQUIPMENT

Carriers allow shippers and receivers a specified amount of free time in which to load and unload their equipment. Any delay beyond this free time allowance will result in penalty charges when the delay is not caused by the carrier. Demurrage and detention charges are imposed as a penalty to influence (a) shippers to load and (b) consignors or receivers to unload promptly in order to release equipment for reuse.

Rail demurrage generally begins to accrue 48 hours after the first 7:00 a.m. that cars are placed on the siding for unloading (24 hours for loading) unless there is an "Average Agreement" between the contractor and the local railroad. Detention to the railroads is actually a user charge for special heavy-duty flat cars while at rest, which is in addition to demurrage.

Motor carriers use the term detention rather than demurrage. There are two rules covering motor carrier detention. Item 500 of the National Motor Freight Classification (NMFC) addresses detention of both the tractor and trailer, which is marked in minutes and is graduated according to the weight of the shipment. Item 501 covers the spotting of trailers for loading or unloading wherein time is marked by days. Motor carriers may adopt classification rules on detention or may publish their own in an individual or bureau tariffs, which can be more or less than the classification rule.

- **LTL (Less-Than-Truckload)** - At some locations, when shipping via certain motor carriers, shipments of the LTL and small-lot category must be loaded or unloaded within 30 to 45 minutes.

- **Truckload** - Practically all carriers require large shipments to be loaded or unloaded within a specified amount of time (usually within 4 hours).

- **Dropped or spotted trailers** - Generally these have between 24 and 48 hours free time allowed for loading or unloading trailers, if so negotiated.

Water carriers also use the term demurrage. Free time for dropped or spotted steamship equipment varies with the line, but is usually between three and four days.

To avoid additional or unplanned transportation charges, logistics personnel must know the carrier's published rules on demurrage and detention to ensure strict compliance with governing regulations. Where applicable, use the authorized DOE contract carriers for shipments in order to minimize costs and maximize time allowed for loading and unloading.

Every effort should be made to schedule pickups, deliveries, and equipment placement so that loading and unloading will be prompt. In return, the shipper should expect the cooperation of all carriers to meet its shipping and receiving needs. Normally, demurrage and detention charges are unallowable and contractors will not be reimbursed for these costs if caused by contractors. Refer to CFR 41 Part 109-40.

CHAPTER 4

SHIPMENT SCHEDULING

4.1 SHIPMENT SCHEDULING

Shipment scheduling is the function and responsibility of the shipper. For shipments inbound to DOE facilities the shipper will be a vendor, manufacturer, or supplier, and follow instructions received from transportation or procurement personnel at the destination site (or the site having transportation authority). For outbound shipments, either the local Transportation/Traffic Department or existing DOE contracts will determine the routing. The ATMS assists in making mode and carrier selections.

Shipment scheduling is the transfer of information to the carrier. This includes the basic instructions received from the customer, the packaging information, and any additional transportation-related instructions from the Traffic Department that will ensure the safe, efficient, and cost-effective movement of goods and a satisfied customer.

The following information should be communicated between DOE/DOE contractors and the carrier, preferably in the form of a site specific checklist:

- Availability and type of equipment
- Pickup date/time
- Delivery date/time
- Confirmation of rates/tenders
- Description of the shipment
- Origin/destination
- Special requirements
- Special instructions
- Hazardous materials issues

To insure accuracy and completeness, develop and use a relevant checklist.

41 CFR 104-40, and DOE Order 460.2 Implementation Guide 1.3 and 2.1, which indicates that DOE O 460.2, and use of this guide, should enhance the ability of all DOE and DOE contractor shippers to perform their responsibilities in a safe, efficient, and economical manner in concert with today's priorities and policies while remaining in full compliance with applicable requirements. Additionally, site-specific Work Smart Standards and the Integrated Safety Management system are also applied in this effort

41 CFR 109-40.103.1 and 41 CFR 109-40.302 provide explanations of the legal authorization of carrier selection for the government.

41 CFR 109-40.302 (a) states shipments shall be routed using the mode of transportation, or individual carriers within the mode, that can provide the required service at the lowest overall delivered cost to the government.

Note: Issues concerning hazardous materials shipments are covered in Part 2 of this manual.

4.2 CONSOLIDATION OF SHIPMENTS

DOE Order 460.2, Implementation Guide 3.1.4, as applicable, provides guidance for consolidation activities on behalf of DOE.

Shipments should be consolidated into larger shipping quantities or units whenever such arrangements will result in transportation or administrative economies. In determining whether separate shipments may be advantageously consolidated, consideration shall be given to established stop-off privileges for partial loading or unloading at intermediate locations, inclusion of small lots in the same car or trailer with carload or truckload quantities, and possibly using freight forwarder service. Opportunities for consolidation between the various field sites should be considered.

Other factors to be considered, when applicable, are nuclear criticality safety, radiological safety, safeguards requirements, security interest, risk assessment, supporting telecommunications, shipment planning, shipping campaigns, and programmatic requirements.

Benefits of consolidation include: cost savings, less freight handling, better capacity utilization, and an overall improved operating efficiency. However, service levels can be affected by delays in waiting to consolidate shipments. In general, DOE sites have limited opportunities for consolidation.

CHAPTER 5

DOCUMENTATION

5.1 INTRODUCTION

The DOE transportation program requires use of a wide range of government and commercial documents in preparation, execution, and completion of various types of shipments. Proper execution of documents in accordance with prescribed guidance is important to safe, economical, efficient, and secure transport of materials. Reference 41 CFR 101 and 109, Subchapter G, DOE Orders 460.1A and 460.2, and site-specific Work Smart Standards. Requirements for additional documentation are found in DOT, EPA, IMDG, ICAO/IATA regulations.

5.2 EXECUTION OF DOCUMENTATION

Examples of pertinent transportation documents, as well as instructions on preparation, are found in Appendix D of this manual. Those documents include the following:

Commercial Straight Form Bill of Lading. The Straight Form Bill of Lading is prepared in accordance with instructions found in the NMFC. The example form shown in the Appendix D is the same form that appears on the Automated Transportation Management System (ATMS) as the approved Bill of Lading for DOE shipments.

Government Bill of Lading (GBL). GBL's are used when authorized under 41 CFR 101-41.3 and must be prepared in accordance with the pampW6 0 T§7 2 7

Clearance Authority (ACA) at Wright Patterson AFB. The ACA processes the DD 1384 and authorizes the release of the shipment from Dover AFB to destination AFB. Refer to DOD 4500.32 R Manual for preparation guidance. Refer to Appendix D for detailed completion instructions for the DD 1384.

DD 1387- Military Shipment Label. The DD 1387 is used to process shipments routed via U.S. Air Force military distribution channels i.e. Dover AFB. The label is applied to carton exteriors and serves the same purpose as a commercial shipment label. Refer to DOD 4500.32.R Manual for preparation guidance. Refer to Appendix D for detailed completion instructions for the DD 1387. Also see Section 12.7 in this manual.

5.3 IDENTIFICATION OF DOCUMENTATION

Transportation logistics personnel must be able to identify - in terms of use and accuracy of completion - additional documents. These documents include the following:

10721 Tender. A rate tender filed by a rail carrier, offering the government reduced transportation rates. This tender takes its name from that section of the revised Interstate Commerce Commission Term

5.4 SITE-SPECIFIC DOCUMENTATION

Use Appendix D "Documentation" in this manual to include additional documents (either general or site-specific) as deemed necessary by local DOE/DOE contractor transportation management. This may include documents and instructions for their use, or copies of various documents that transportation logistics personnel must be able to identify and understand.

CHAPTER 6

RELEASE TO CARRIER

6.1 INTRODUCTION

Following packaging, shipment scheduling, and preparing required documentation, the shipment is ready for release to the carrier. Procedures for releasing a shipment to the carrier involve several steps that include matching the relevant documentation to the packages to insure accuracy; loading and securing the shipment to the vehicle; and signing the required documentation.

6.2 PRE-SHIPMENT REQUIREMENTS

For all shipments, use a checklist specifically tailored to site requirements for the type of shipment. On the checklist, itemize contents, mode, routing, origin, and destination. In addition, itemize packaging, marking, labeling, placarding, and documentation information requirements as determined from customer needs, carrier requirements, as well as DOE and other government regulations and guidelines.

Documentation Checklist

The documentation checklist should specify all shipping papers necessary for the shipment, along with any other documentation required by the shipping facility. In addition to site-specific information, the list should include such things as:

- Appropriate document(s)
- Authorized signatures
- Items to be cross-checked with the bill of lading (i.e., shipper, consignee, commodity, and carrier)
- Shipping instructions to the carrier
- Pre-shipment notification
- Shipment profile sheet
- Estimated time of delivery
- Customer reference number
- Load Securement

6.3 LOADING METHODS AND TIE-DOWN REQUIREMENTS

All DOE shippers should ensure adequate loading, blocking, bracing, or otherwise restraining of freight loaded on or in a transport vehicle in accordance with prescribed DOE or DOT requirements where rates are predicated on "shipper's load and count." The most successful methods are usually accomplished through close cooperation between shipper and carrier with

adherence to applicable carrier tariff requirements. For rail transportation see the Association of American Railroads loading rules, and for highway transport the requirements of 49 CFR, Part 393, Subpart I. Hazardous materials requirements are included in 49 CFR, Part 173.30.

Responsibilities for loading, blocking, bracing, and tie-down are stated also in the DOE Order 460.2 - Implementation Guide 3.1.9 . Some of these are:

- At the originating (shipper's) facility, it is the shipper's responsibility to load the carrier's vehicle; and it is the driver's responsibility to secure the shipment for transport.

- For cargo delivered directly to an air terminal, rail ramp, or steamship pier, it becomes the carrier's responsibility to both load and secure the shipment for transport.

- If rates are predicated on "shipper's load and count," the shipper is responsible for loading, blocking, bracing, or otherwise restraining freight loaded on or in a railcar, trailer, or container.

- For hazardous materials shipments, by any mode, it is incumbent upon the shipper to ensure that freight is loaded and restrained properly. It is the responsibility of the carrier to check the load while in transit in accordance with 49 CFR, Part 173.30 and all modal requirements in Parts 174, 175, 176, and 177.

Once a shipper is satisfied that all requirements have been met and verified, the shipper should compare the driver's documentation to the instructions given the carrier at the time of scheduling to ensure accuracy. Finally, appropriate documents should be signed by the driver, and the shipper and the documentation exchanged. This sign-off indicates title transfer (if appropriate), as well as the carrier's acceptance and responsibility for the goods.

Every shipper should check each shipment after the documentation has been confirmed; the shipment loaded, blocked and braced; and the driver's documentation verified. Loading dock personnel are not accountable for inspecting a driver's licensing endorsements or vehicle inspections. However, they should be alert for obvious violations on the part of the driver or equipment deficiencies.

CHAPTER 7

EXPEDITING AND TRACING

7.1 INTRODUCTION

Expediting involves making arrangements for the transport of goods *prior* to shipment, enabling the goods to reach their destination sooner than would have been possible without assistance. Tracing is *following* a shipment from terminal to terminal to obtain a record of its movement, or to determine and correct problems occurring en route. Along with tracing, comes the need to intercept, redirect, or reconsign shipments en route.

Tracing and expediting are indicated when:

- Requested by the customer
- Directed by management
- Indicated by past experience with problem traffic lanes
- Caused by weather or other acts of God.

7.2 EXPEDITING

Because major corporations and government agencies are reducing inventory, labor, and warehousing costs by taking the Just-In-Time (JIT) approach to material handling (see Section 8.1, "Shipment Receipt"), on-time delivery has become increasingly important in transportation logistics.

Expediting may involve a change in mode; for instance, from truck to air, although air transportation is not always the answer to moving a shipment quickly. Expediting may mean giving specific routing instructions to a carrier to avoid a particular terminal that may have proven to be a service bottleneck in the past. Expediting may also involve changing carriers to avoid delays in regular traffic patterns because of floods, earthquake damage, or strikes, for example. Generally, additional monies may be assessed when changes in transportation are requested. When expediting involves a change in mode which is considered ‘premium’ transportation, written justification is required.

Expediting involves transportation logistics experience. Expediting requires a wide range of transpor

consign a shipment en route. The need to intercept, redirect, or re-consign may occur for any number of reasons, including the vendor shipping the wrong item, nonpayment of invoices, or a shipment consigned to the wrong address. A shipment may be intercepted and held for further instructions, redirected to another office or warehouse, or possibly consign to another buyer/destination.

Tracing freight and equipment by satellite has become so sophisticated that a particular vehicle can be located within a few yards and shown whether it is moving or stopped. Several commercial carriers use the QualCOMM[1] satellite system and the DOE has the TRANSCOM system (see Appendix E), which is available to the DOE complex. Tracking of spent nuclear fuel, high level wastes, and high visibility shipments is designated by DOE in DOE Order 460.2, Contractor Requirements Document (CRD), (3).

1QualCOMM is a trademark of QualCOMM, Inc.

CHAPTER 8

SHIPMENT RECEIPT

8.1 INTRODUCTION

The DOE complex is a consumer organization, purchasing and receiving a great deal more material than it ships out. Because inbound material may range from paper clips to highly toxic chemicals and radioactive material, it is important that receiving facilities be staffed with properly trained personnel using current procedures. Proper dock procedures and attention to detail by receiving personnel can avoid many of the problems arising from improper handling, loss, or damage to inbound shipments.

Transportation logistics has been on the cutting edge of making industry more efficient and competitive. The increasing need for effective procedures and greater accountability has led to a wide variety of efficiencies including the JIT concept of warehousing and distribution. The cost of inventory, labor, and space are the major expenses in any distribution system. Because of the need to cut costs and streamline operations, the days of keeping inventories on hand in vast warehouses, and staff for multiple handling are becoming things of the past. The JIT concept requires effective relationships between manufacturers, suppliers, and carriers to provide continual, reliable, timely, flow of material. JIT creates leaner operations with smaller warehouses, minimal handling, and limited inventory control and maintenance.

8.2 VERIFYING AND RECORDING þ AIR AND MOTOR CARRIERS

Trained receiving personnel, following established dock procedures and paying attention to detail, can avoid many discrepancies in receiving goods from, and disputes with, the carrier over loss or damage. It is important to verify ownership and piece count against the carrier's delivery receipt or manifest and to perform detailed, physical inspection of all shipments tendered for delivery. Discrepancies in piece count and evidence of damage must be noted on the delivery receipt or manifest before signing for the shipment. Damaged goods should be segregated for inspection and other variances recorded on an appropriate form (pictures of visible damage should be taken whenever possible).

Systems such as bar coding or checklists to verify information from incoming shipments will reduce handling errors and speed processing of material. Checklists should include site specific information and general information as listed below:

- Consignee
- Delivery point/address
- Received from
- Shipping point/address
- Description of the goods
- Quantity and weight
- Carrier
- Date shipped/received
- Credit card number
- Freight bill number
- Freight charges
- Prepaid or collect
- Pieces on freight bill
- Units of purchase
- Quality control inspection
- Sensitive or controlled
- Purchase order number

Attach receiving document (or bar code) and move the shipment to holding area for warehouse stock, distribution to the field, or to Quality Control (QC) for inspection. Some sensitive items are held in a security area until ready for transport to the user.

Samples or material not under the control of purchasing are usually received on some type of memo-receiving report.

Truckloads, large components, and delicate equipment are usually delivered directly to the receiver in the field, sometimes requiring special coordination such as riggers on heavy lifts or badging or escorting of truck drivers. Some locations "clear" and badge regular delivery drivers on a permanent basis so that no escort is required.

Classified items must be received and transported to an intermediate custodian or to the user by personnel having appropriate security clearance. Generally, there are site specific requirements for receipt of classified shipments.

8.3 VERIFYING AND RECORDING - BULK RAIL SHIPMENTS

DOE facilities that receive bulk materials in quantity via rail usually have track scales to verify origin weights used by both the vendor and the railroad for billing purposes. Cars are weighed by a certified weigh master and weighing follows tariff rules of the railroad weighing and inspection bureau having jurisdiction. These rules recognize that no two track scales will record identical weights on a particular car if there is intervening transportation. Factors such as rain, snow, and wet material that dries out in transit all influence scale weights; therefore a tolerance (500 pounds or 1-1/2%) of the lading weight on bulk materials is established. Unless the difference in net weight exceeds the tolerance, no shortage or overage exists in transportation. However, once the tolerance has been exceeded, full restoration for a shortage may be claimed for the difference in origin and destination weights, provided there is some evidence of carrier negligence, such as bottom doors leaking or a hole in the car. Lack of such evidence casts suspicion on origin weights. If weighed by the vendor and not the railroad, the vendor may be liable.

8.4 GOODS DAMAGED IN TRANSIT

8.4.1 Visible Damage

Damage in transit is caused by a variety of factors, the most common is handling and transfer at carrier terminals. Other common causes include load shifting, vibration, and inadequate packaging by vendors. Receiving personnel must be alert to evidence that packages, crates, and loose items have been compromised in any way by water, scratches, punctures, dents, and crushing. Before signing for the freight, any exception should be detailed on the carrier and consignee copy of the freight/air bill or delivery document (see 41 CFR 101-40.702-1). If a delivery driver challenges an exception on packaged freight, receiving personnel may open the package in the driver's presence to confirm internal damage, provided opening of the package does not disrupt normal receiving procedures. Ask the driver to acknowledge the exception on the delivery document, by signature or initials; this acknowledgment will help to substantiate the claim as referenced in the National Motor Freight Classification. beginning with 300100. It is always a good practice to photograph any visible damage or indications of possible damage.

A damaged shipment should not be rejected upon the carrier's attempt to deliver,

regardless of the degree of damage, unless the shipment has no salvage value. It is incumbent upon the receiver to mitigate the carrier's loss (41 CFR 101-40.701). **Classified or hazardous shipments shall not be rejected for any reason.** There are specific requirements for filing certain types of loss/damage claims. Some examples are :

- Household Goods - 41 CFR 101-40.207
- Narcotics or controlled substances - 41 CFR 40.702.3
- Ammunition, explosives, or other hazardous articles - 41 CFR 101-40.702.3

Also reference Part II, Chapter 10 of this manual for additional requirements for hazardous materials.

Before unloading trucks or railcars, receiving personnel should inspect for load shifting, broken bracing, and other signs of rough handling. It is a good practice to photograph such signs to substantiate a later claim for damage.(41 CFR 101-40.701). Unbalanced loads may represent an additional risk during the unloading process. Additional caution should be exercised when unloading consignments with the above indications.

8.4.2 Concealed Damage

Concealed damage discovered during unpacking in a central warehouse, or by the user in the field, should be reported immediately to the person responsible for inspecting damaged freight and filing claims. Save outside and inside packaging material, and have contractor and carrier representatives jointly inspect shipment. While not universally applied, concealed damage is expected to be discovered and reported to most delivering motor carriers within 15 days after delivery. Traffic managers must ensure that such notifications are made in a timely manner. See Section 8.6.1 "Concealed Damage Claims."

8.5 LOSS IN TRANSIT

Shortages in receiving freight occur for a variety of reasons, not all are grounds for filing a loss in transit claim against the carrier. Reference National Motor Freight Classification beginning with 300100. Some of the more common reasons are discussed in this section which include:

Over and short by seller. When the piece count matches that shown on the consignee's copy of the freight bill, but the quantity received differs from that shown on the packing list, record the difference on a type of variance report other than the one (OS&D Report) used to initiate a claim against the carrier. It is usually the responsibility of Purchasing to reconcile overages with the vendor as well as shortages within a package unless there is evidence of tampering with the package.

Over in transit. A piece count exceeding that shown on the consignee's copy of the freight bill but which tallies with the purchase order quantity is usually a carrier error in transcribing from the bill of lading. The carrier can reconcile this overage from its origin station records.

A piece count that exceeds the purchase order quantity should be reconciled with the vendor by Purchasing.

Partial loss in transit - F.O.B. Origin. Any shortage should be supported by an exception on the co

shipment over a certain minimum dollar amount has been detected. Packaged freight that has been wet, dented, crushed, or punctured should be opened on the dock to verify damage to the contents before contacting the traffic office. If contents are undamaged, the package may be resealed and forwarded to the user. If contents are damaged, exterior and interior packaging should be saved for the initial inspection by traffic personnel and the joint inspection with the carrier.

For goods purchased F.O.B. Origin, use the following (generic) claims filing procedure:

- Upon initial inspection, the traffic inspector (1) determines who has title to the goods, (2) determines limits on carrier liability (such as released value rates), (3) executes some type of damage report, (4) photographs the damage (see 41 CFR 101-40.701), (5) releases the damaged goods to a holding area for salvage, and (6) calls for a joint inspection with the carrier.

- Before the joint inspection, the traffic inspector usually distributes the damage report to finance and purchasing and, if possible, confers with the buyer/user as to a repair (in-house or by vendor) or replacement option. Sometimes the decision to repair or replace cannot be determined until after the claim has been filed.

- After the joint inspection, (which, by internal procedure, may include Quality Control [QC]), traffic assembles the following documentation. (1) copy of seller's invoice; (2) original freight bill (or if copy, with a bond of indemnity); (3) damage report; (4) carrier inspection report (or statement of waiver on the damage report); (5) copy of consignee's copy of freight bill on which exception was taken; and (6) other pertinent data (such as photos). If replacement is the only option, immediately file a claim for replacement cost plus freight. Later, amend claim upward if replacement proves to be more costly.

- If the shipment has moved on a "released value" surface carrier rate (see Section 3.3, "Carrier Selection Freight Pricing") or a "no value declared" air carrier rate, the amount that can be claimed will be limited to the terms under which those rates were offered.

Some contractors immediately file claims for replacement cost plus freight, even though it appears that the damaged item can be repaired. If item is to be returned to seller for repair, the contractor's buyer negotiates repair costs with the seller. Traffic should ensure that damaged item is returned to vendor on a prepaid or deadhead basis via the carrier with which the claim is filed. A copy of the seller's repair invoice, along with round-trip freight bills (if not dead-head) become the measure of loss in filing or amending a claim. If repairs are to be made in-house, a typical procedure is as follows:

- Finance accumulates costs of parts and labor in a claim account.
- Purchasing orders replacement parts.
- Work is performed in-house, sometimes subject to QC inspection.

- Upon completion of repair work, Finance provides labor, material, and overhead cost information in writing, which together with freight costs, becomes the measure of loss in filing or amending a claim.

When title to the material passes at destination, it is usually Purchasing who transmits a copy of the freight bill, the original copies of both the damage report and the carrier's inspection report, and other supporting documents to the seller for use in processing a claim against the carrier.

Salvage becomes the property of the carrier or seller upon settlement of the claim or replacement of the goods. Salvage should be retained until that time. Traffic will execute the shipping form releasing the damaged property to the carrier.

8.6.1 Concealed Damage Claims

Concealed damage is damage discovered after the consignee has signed for a shipment without taking an exception. Full recovery is very difficult. Carriers judge concealed damage claims on the persuasiveness of the evidence or carrier negligence. Some carriers require statements from both shipper and consignee as to the package details and any prior (manufacturer to distributor) and subsequent (consignee's dock to user) transportation. It is not unusual for the carrier to offer either a settlement of one-third of the value under such circumstances or to decline the claim altogether. Most surface carriers expect the consignee to report concealed damage within 15 days. While this is not a legal requirement, it is considered reasonable grounds for recovery. Ocean carriers want notification within 3 calendar days of delivery (46 U.S.C. 1303(6)) and international air carriers within 7 calendar days (Article 26 of the Warsaw Convention, 49 Stat. 3020).

8.6.2 United Parcel Service (UPS) and Parcel Post Claims

Damage to United Parcel Service (UPS) shipments are handled as a shippers claim, since UPS is liable only to the shipper (regardless of F.O.B. terms) for damage in transit. Maximum liability is $100 per package when no value has been declared on the Pickup Record. If a value is declared, the shipper will be billed by UPS for insurance to the declared value.

Although it is the usual practice to request that all Parcel Post shipments on orders placed F.O.B. Origin not be insured, it is common knowledge that many vendors carry blanket insurance on all shipments. It is worth an inquiry by Purchasing to determine if the loss is above the contractor claims minimum. If the vendor does have insurance, the buyer may persuade the vendor to ship a no-charge replacement and file claim. Otherwise, there is no recourse.

8.6.3 Claims on Shipments From Government Agencies

Requirements in the GSA Handbook "Discrepancies or Deficiencies in GSA or DOD Shipments" are outlined below:

Shortage in piece count. Carrier is allowed two weeks to find the missing freight before executing a Discrepancy in Shipment Report (DISREP), Form SF 361, to GSA, with copies to Purchasing and Finance.

Overage/shortage in items received. Receiving personnel complete an internal variance report from which the buyer executes a Report of Item Discrepancy (ROID), Form SF 364, with copies to GSA and Finance.

Damage in shipment. If the Traffic Inspector determines that damage appears to have been caused by carrier negligence, request an inspection by the carrier. The traffic inspector also will submit a Discrepancy in Shipment Confirmation (DISCON), Form SF 363. If the carrier does not respond within 30 days, the traffic inspector will submit a DISREP to GSA with supporting papers, with copies to Purchasing and Finance.

GSA sells on a delivered basis; therefore, loss or damage is adjusted in the billing.

8.6.4 Railroad Claims

Delivery via railroad is considered complete when a railcar is placed on the consignee's spur track with or without a waybill. There is no railroad document on which the consignee may note loss or damage. Otherwise, inspection procedures and documents necessary to support a claim are essentially the same as in Section 8.5 "Loss in Transit", recognizing the tolerance on bulk materials (explained in Section 8.2, "Verifying and Recording þ Air and Motor Carriers").

8.6.5 Denial of Claim by Carriers

Most of the major carriers in the United States pay loss or damage claims when carrier negligence has been clearly established in documents supporting the claim. There are, however, some carriers that resist paying any claim until threatened by litigation. Unwarranted denial of claims can often be avoided by using only approved carriers, and by establishing a good working rapport with those carriers.

When a claim is declined by a carrier, review the merits of the claim and the reputation of the carrier for paying claims. There are several options open to the claimant whose claim has been denied. These include:

- *Write off the claim.*
  Some Field elements provide their contractors with blanket authority to write off uncollectible claims under $1,000. Authority for this compromise is in 4 CFR 103. Other field offices require the claim file and the contractor's recommendation be forwarded for review. A questionable claim, such as one for concealed damage discovered at a location other than where the shipment was received, could be susceptible to writeoff.

- *Accept the carrier's offer to settle the claim for an amount less than that claimed.*

Under 4 CFR 104, the head of an agency may exercise such compromise authority where the claim, (exclusive of interest, penalties, and administrative costs, after subtracting partial payments) does not exceed $20,000. The authority to compromise a claim exceeding $20,000 rests solely with the Department of Justice.

- *Involve Finance and/or local legal counsel in a decision to refer the claim to the General Accounting Office (GAO) or the Department of Justice for collection or litigation.*
  See Chapter VIII(4) of the "Accounting Practices and Procedures Handbook," DOE/CR 0009, and FPMR 101-40.712 for details. Prior to referral, however, the claimant must have taken "aggressive action" to collect. Aggressive action is defined in 4 CFR 102.2 as "a total of three progressively stronger written demands at not more than 30-day intervals" þ unless a response to the first or second letter indicates that further demand would be futile. The letter(s) must also inform the carrier of the consequences of nonpayment, such as disqualification and suspension, litigation, or even offset.

- *Counsel may elect to litigate locally.*

- *Invoke administrative offset under the provisions of 4 CFR 103, "Collection by Administrative Offset" and 31 U.S.C. 3716 "Administrative Offset" after a review within the agency of this decision.*

  Advance notice must be given to the carrier of the agency's intention to collect by offset unless the carrier reconsiders. If the agency does not owe sufficient funds to the carrier to cover the offset, 4 CFR 102.3 permits the agency to establish procedures whereby it can make an offset request to another agency that does owe enough money to cover the claim. Also see 41 CFR 101-40.711-1 for use of an offset to collect a claim from an insolvent carrier.

CHAPTER 9

PROCESSING FREIGHT BILLS

9.1 INTRODUCTION

The freight bill is the carrier's invoice for charges incurred in the movement of a given shipment. STB no longer retains authority to regulate credit terms that carriers are permitted to offer the shipper or consignee. With the ICC Termination Act of 1995, carriers have the right to negotiate credit terms with customers. Refer to Chapter I, 1.3 and 3.5. The DOE has no specific policy governing the length of time allowed for processing and payment of a carrier's freight bills, but in most cases is granted 30-45 days by various carriers. Also reference 41 CFR Part 101-41, Transportation Documentation and Audit to Chapter 9, Processing Freight Bills.

9.2 PAYMENT OF FREIGHT BILLS

Freight bills may be prepaid or collect; these payment terms determine to whom and when the freight bill will be presented. Technically, on a prepaid shipment, the freight bill is presented on the effective day of shipment; on a collect shipment, the freight bill is presented on the effective day of delivery.

Always review the freight bill before payment. To process a freight bill for payment, follow these general steps:

- Verify that the freight bill is yours. Even in these days of computerization, this is a very common error. Compare the bill to the Bill of Lading and/or the delivery receipt to verify the commodity shipped, pickup and delivery dates, and origin and destination address.

- Verify the extensions. Compare the rate quoted with the rate charged, and check mathematics for common errors. Compare information on the freight bill to the Bill of Lading and/or the purchase order to verify weight, classification, and piece count.

- Send approved freight bill to Accounts Payable for payment.

** Note These three steps are automatic by utilizing the Automated Transportation Management System (ATMS). Refer to Appendix E for ATMS information.*

9.3 AUDIT OF FREIGHT BILLS

DOE Order 534.1 and its predecessor DOE Order 2200.9B, Chapter II, "Transportation Accounting" state the requirements for audit by the General Services Administration (GSA). 41 CFR 101-41.807-4 requires the following documents be submitted to GSA for audit:

- Legible copies of all paid freight bills and invoices

- Commercial bills of lading

- Supporting documentation covering transportation services for which the United States will assume the charges that have been paid by a Federal agency's contractors and/or their first-tier subcontractor under a cost reimbursement contract.

DOE formally requested an exception from GSA on this requirement, supporting the request with a cost-benefit analysis. As a result, GSA granted DOE an exception that requires submission of only those bills and invoices that are for $50 or more. Such documents of $50 or less shall be retained onsite and made available for GSA onsite audits. The contractor shall forward promptly to GSA any original transportation bill requested by GSA. The contractor

packagings available. PMTS will provide technical information, maintenance status, and administrative controls. The system will allow acquisition of packaging related data for planning activities and will support the analysis of cost and efficiency of shipping campaigns in order to reduce cost of future shipments. Of major importance, PMTS will track DOE identified hazmat packagings by location and availability, maintenance records, schedules of use, owner and custodian information, certification/approval status, reports, queries, and online help features. PMTS will be centrally located and will provide on demand status, inventory, and availability of radioactive materials packagings for DOE/contractor use. PMTS packaging information will also be a valuable resource to non-DOE packaging custodians. Refer to Appendix E for additional PMTS fact sheet information.

PART II

MANAGING THE TRANSPORTATION OF HAZARDOUS MATERIALS

CHAPTER 10

MANAGING THE TRANSPORTATION OF HAZARDOUS MATERIALS

10.1 INTRODUCTION

Part II of this manual identifies additional requirements necessary to manage Department of Energy (DOE) hazardous material shipments in a manner that complies with all applicable regulations and minimizes risk to employees, the shipping industry, the public, and the environment.

This chapter identifies and summarizes regulations and requirements that are applicable to the user of this manual. The user is responsible for insuring that all hazardous materials shipments made on behalf of the DOE comply with applicable regulations and requirements.

10.2 APPLICABLE TRANSPORTATION AND PACKAGING REGULATIONS

Part II of this manual identifies, either by summary or by reference, that all DOE hazardous material shipments must be packaged and transported in accordance with the applicable provisions of the following regulations and requirements. Also refer to Appendix B for other regulatory drivers.

- Title 10, Code of Federal Regulations, "Energy," Department of Energy (DOE) & Nuclear Regulatory Commission (NRC).

- Title 29, Code of Federal Regulations, "Labor," Occupational Safety and Health Administration (OSHA).

- Title 40, Code of Federal Regulations, "Protection of Environment," Environmental Protection Agency (EPA).

- Title 41, Code of Federal Regulations, “Property Management Regulations”, Chapter 109, Department of Energy

- Title 49, Code of Federal Regulations, "Transportation," Department of Transportation (DOT).

- DOE Order 200.1/1324.5B, "Records Disposition."

- DOE Order 460.2, "Departmental Materials Transportation and Packaging Management."

- DOE Order 460.1A, "Packaging and Transportation Safety."

- DOE 5632.1C, "Protection and Control of Safeguards and Security Interests."

- DOE Order 232.1, "Occurrence Reporting and Processing of Operations Information."

- DOE Order 151.1, "Comprehensive Emergency Management System."

- DOE Order 450, “Safety Management System”

- DOE 5632.1C, "Protection and Control of Safeguards and Security Interests."

- DOE Order 5700.6C, Quality Assurance."

- International Atomic Energy Agency (IAEA) Safety Standards, "Regulations for the Safe Transport
  of Radioactive Materials," Rev. Safety Series No. 6 and 80; Safety Series No. 7; and Safety Series 37 (all Safety Series documents as amended 1990).

- International Civil Aviation Organization (ICAO), "Technical Instructions for the Safe Transport of Dangerous Goods by Air," current edition.

- International Air Transport Association (IATA), "Dangerous Goods Regulations," current edition.

- Tribal, local, and state regulations.

- Other site specific Work Smart Standards, Transportation Safety Manuals and Plans, etc.

10.3 Hazardous Material Packaging and Transportation

This section identifies DOE requirements for packaging and transportation of hazardous materials (including waste) based on Federal Regulations, DOE Orders, and other applicable regulations and requirements. Personnel responsible for performing hazardous material packaging and transportation operations and activities must comply with all applicable DOE orders referenced in section 10.2 of this chapter, specifically DOE Order 460.1A and DOE Order 460.2 and with site specific Work Smart Standards.

DOE Order 460.1A, para. 4, (1), (a) requires hazardous material to be prepared, packaged, and transported in compliance with the applicable regulations of the U.S. Department of Transportation (DOT) found in Title 49, Code of Federal Regulations (CFR), "Transportation." DOT regulations (specifically Parts 100 through 180, and Parts 325 through 399) regulate the packaging and transportation of hazardous material in interstate and intrastate commerce where the public has free and unrestricted access. DOT Regulations also apply to packaging and transportation of hazardous material on roadways determined to be onsite where the public is restricted from access, unless DOE Heads of Field Elements approve alternatives that provide equivalent protection to DOT regulations. DOE Order 460.1A, para 1, defines onsite versus offsite.

10.3.1 Hazardous Material Classification

Hazardous material, defined by DOT in 49 CFR, Part 171.8, is any substance or material, including a hazardous substance, which has been determined by the Secretary of the DOT to be capable of posing an unreasonable risk to health, safety, and property when transported in commerce. In addition, Part 171.8 defines hazardous waste as any

material that is subject to the Hazardous Waste Manifest requirements of the U.S. Environmental Protection Agency (EPA) found in 40 CFR,
"Protection of Environment," Part 262.20. Hazardous waste, subject to the requirements of Part 262.20, must comply with DOT packaging and transportation regulations identified in 49 CFR (see 40 CFR Part 262.30 through 262.34).

According to DOT, hazardous material or hazardous waste (including mixtures) is classified, packaged, communicated, and transported, based on the greatest hazard(s) present in the package [49 CFR 172.101, column 3, 172.101, (c), (12) and 173.2a]. Descriptions and proper shipping names of materials designated as hazardous materials are found in 49 CFR 172.101, Hazardous Materials Table (HMT). Proper shipping name

Class 1 Explosive substances or explosive devices must be classified by an agency identified in 49 CFR 173.56(b) prior to the substance or device being offered for transportation via any mode. Explosives definitions, classifications, and packaging requirements are located in 49 CFR, Part 173, Subpart C.

10.3.2 Hazardous Material Packaging

Hazardous material packaging is defined in 49 CFR 171.8 and identified in 49 CFR Part 173. DOT defines packaging as "a receptacle and any other components or materials necessary for the receptacle to perform its containment function in conformance with the minimum packing requirements of this subchapter."

The HMT in 49 CFR 172.101, (columns 8A, 8B, and 8C) lists appropriate sections in 49 CFR Part 173 from which hazardous material packaging can be identified based on the proper shipping name of the material, and whether the material is a limited quantity (column 8A), non-bulk quantity (column 8B), or bulk quantity (column 8C) according to the definitions of limited quantity, non-bulk, and bulk in 49 CFR 171.8. Types of hazardous material packaging include the following:

- **Single packaging** is a stand-alone packaging without integral components (e.g., a single drum).

- **Combination packaging for liquids and solids** is composed of inner and outer components such as inner receptacles, cushioning, and absorbents (e.g., fiberboard box with inner metal cans).

- **Composite packaging** is a packaging in which the inner and outer components become a permanent and integral part of the receptacle (e.g., metal drum with a poly liner).

- **Bulk packaging** means packaging, other than a vessel or a barge, including a transport vehicle or freight container in which hazardous materials are loaded with no intermediate form of containment and that has one of the following.

A maximum capacity greater than 450 liters (119 gallons) as a receptacle for liquid

A maximum net mass greater than 400 kilograms (882 pounds), and a maximum capacity greater than 450 liters (119 gallons) as a receptacle for solid

A water capacity greater than 454 kilograms (1000 pounds) as a receptacle for gas as defined in 49 CFR 173.115.

DOT definitions for the above packagings are found in 49 CFR 171.8.

Packing groups (indicated in column 5 of the HMT) identify the degree of hazard presented by a hazardous material when compared to other materials within its respective hazard class. The greatest degree of danger (packing group I) presented by a hazardous material requires that a Performance Oriented Package (POP) be designed

and tested to the strongest standards per 49 CFR 178.503(a)(3). The packing groups and corresponding degree of danger are as follows:

- Packing Group I þ great danger
- Packing Group II þ medium danger
- Packing Group III þ minor danger

All non-bulk packaging manufactured after October 1, 1994 must be manufactured according to the United Nations (UN) performance-oriented standards for packaging. Non-bulk POP must also be tested in the configuration that it will be used when loaded with hazardous material. All testing criteria for the packaging is based on normal transportation environments. UN identification codes certifying the package to standards for which it was tested must be marked on the package (see 49 CFR 178, Subpart L). Performance-related tests for non-bulk POP include drop, stacking, leakproofness, hydrostatic, vibration. All applicable tests must be passed before a non-bulk packaging can be utilized for hazardous materials transportation.

All applicable tests must be passed before a non-bulk POP can be utilized for hazardous material transportation (see 49 CFR Part 178, Subpart M).

Non-bulk packaging requirements specific to explosives and explosives packaged with mixed hazards are located in 49 CFR 173.61, 173.62, and 173.63. All explosives packaging designs and configurations must be approved by an agency identified in 49 CFR 173.56(b) prior to being offered for transportation.

Gas cylinders, non-bulk packaging, and packaging used for poison inhalation hazard material (per 49 CFR 173.226 and 173.227) have specific configuration requirements, testing requirements, and qualifications inherent to design and maintenance (e.g., flattening, physical, and leak tests for cylinders, safety relief devices for tank cars, wall thickness of tank cars, etc.). These requirements and qualifications are located in 49 CFR Part 178 through Part 180.

10.3.3 Hazardous Material Communication

Hazardous material communication requirements include package marking, package labeling, transport vehicle placarding, and shipping papers documenting the hazardous material on board the vehicle. These DOT communication requirements identify the hazards within a package (the term package means the packaging plus its hazardous material contents), or the hazards on board a vehicle. Hazard identification and communication assists emergency responders in mitigating the potential for injury to workers and the public, or damage to the environment, resulting from loss of hazardous material containment.

Package marking identifies the hazardous material in the package should the package become separated from the shipping papers. General marking requirements are found

in 49 CFR, Part 172, Subpart D. The following basic marking requirements for a hazardous material package are found in 49 CFR 172.301:

- Proper Shipping Name - 49 CFR 172.101, column 2

- United Nations (UN) or North American (NA) Identification Number þ 49 CFR 172.101, column 4

- Shipper (consignor) of the hazardous material or receiver (consignee) of the hazardous material (name and address required) þ 49 CFR 172.301 (d)

Additional package marking may be required if the following conditions within the package exist:

- For proper shipping names ending in *n. o. s. (not otherwise specified)* (such as generic names or hazard class names), the additional technical name(s) shall be marked in parentheses association with the proper shipping name, if the proper shipping name is listed in 49 CFR 172.203(k) and 49 CFR, 172.301(b).

- Non-bulk, plastic outer packaging containing poison constituents must be permanently or embossed marked with the word "POISON." See 49 CFR 172.313 (b).

- Packages containing hazardous materials that are considered poisonous by inhalation shall be marked "Inhalation Hazard" þ See 49 CFR 172.313 (a). Refer to 49 CFR, 173.313 for additional marking requirements for poisonous hazardous materials.

Other marking requirements and applicable regulations include the following.

- DOT Exemption packaging non-bulk and bulk ("DOT-E" per 172.301(c) and 172.302(c))

- Bulk packaging (49 CFR 172.302)

- Non-bulk packaging containing liquid (49 CFR 172.312)

- Marine Pollutants (49 CFR 172.322)

- Explosive hazards (49 CFR 172.320)

- Small quantity packaging exception (49 CFR 173.4)

- Hazardous waste in non-bulk packages of 110 gallons or less (40 CFR 262.32) (172.301-.304)

- Packaging manufacturers certification marking (49 CFR, 178.3 and 178.503)

- For hazardous material in quantities in one (1) package that meet or exceed the amount listed for that given material in 49 CFR 172.101, Appendix, Table 1, the letters RQ shall be marked on the package in association with the proper shipping name; and the name of the hazardous substance in parenthesis shall also be marked in association with the proper shipping name as shown in Table 1 in the Appendix to 49 CFR 172.101 (see 49 CFR 172.324).

- For hazardous waste the proper shipping name is not required (172.301(a)(2) to include the word "waste" if the package bears the EPA marking prescribed in 40 CFR, 262.32. These include wastes that meet or exceed the waste stream number, or for wastes that exhibit an Environmental Protection Agency (EPA) characteristic of ignitability, corrosivity, reactivity, or toxicity, the followed by the word "ignitability," or "corrosivity," or "reactivity," or "toxicity," as appropriate.

Package Labeling requirements are found in 49 CFR 172, Subpart E. Labels communicate the hazard(s) present in the package. DOT labels also correspond to the hazard class/division of the material in the package. Labeling requirements based on the proper shipping name and hazard class are found in the HMT in 49 CFR 172.101, column 6.

General labeling requirements are found in 49 CFR 172.400. The section indicates that hazardous material labeling is required, based on column 6 of 49 CFR 172.101 and subsidiary hazard label requirements in 49 CFR 172.402, for the following:

- Non-bulk packaging

- Bulk packaging other than cargo tanks, portable tanks, or tank cars with a volumetric capacity less than 18 cubic meters (640 cubic feet), unless placarded according to 49 CFR Part 172, Subpart F

- Portable tanks of less than 3785 liters (1000 gallons) capacity, unless placarded

- DOT specification 106 or 110 multi-unit tank cars, unless placarded

- Overpacks (outside containers or overpacks), freight containers or unit load devices of less than 18 cubic meters (640 cubic feet) that contain a package for which labels are required, unless placarded or marked in accordance with 49 CFR 172.512

The following are exceptions from labeling requirements and are located in 49 CFR 172.400a:

- Certain gas cylinders containing division 2.1 or 2.2 material per 49 CFR 172.400a(a)(1)

- Packages containing military explosives shipped by or on behalf of the Department of Defense (DOD) meeting certain criteria per 49 CFR 172.400a(a)(2)

- A package containing a hazardous material other than ammunition that is loaded, unloaded, and escorted by the DOD per 49 CFR 172.400a (a)(3)

- Gas cylinders that are permanently mounted to the transportation vehicle per 49 CFR 172.400a(a)(4)

- Freight containers, aircraft unit load devices or portable tanks that meet certain criteria per 49 CFR 172.400a (a)(5)

- An overpack or unit load device in or on which labels representative of each hazardous material in the overpack or unit load device is visible per 49 CFR 172.400a(a)(6)

- A package of low specific activity radioactive material transported under 173.427(a)(6)(vi)

- Exceptions to labeling for small and limited quantities of hazardous materials per 49 CFR 172.400a(b)

Prohibited and additional labeling requirements are in 49 CFR 172.401 through 450.

Shipping Papers also communicate the hazard(s) contained in the package. Hazardous material descriptions must be entered first, or in contrasting color, or preceded by an X (or RQ if applicable). Hazardous material must be described on a shipping paper with at least the following information in sequence:

- The proper shipping name prescribed for the material in column 2 of the HMT in 49 CFR 172.101

- The hazard class or division (for example, class 3, division 2.1) prescribed for the material in column 3 of the HMT in 49 CFR 172.101

- The identification number prescribed for the material in column 4 of the HMT in 49 CFR 172.101

- The packing group, in Roman numerals, prescribed for the material in column 5 of the HMT in 49 CFR 172.101

The following additional descriptions are required on the shipping paper:

- Enter the emergency response **telephone number** once, in a visible location, immediately following the description of the hazardous material (49 CFR 172.604, 172.201(d))

- Enter the total quantity of the material covered by one description (i.e., gross weight or volume) before or after (or both before and after) the description of material. (49 CFR 172.202 (c))

- If a hazardous substance exists in the package, enter the letters RQ before or after the basic description; if the hazardous substance is shown in Table 1 of the appendix to 49 CFR 172.101, and is not identified in the PSN, you must enter the hazardous substance by name, in parentheses, in association with the basic description. If the material is a hazardous waste, the appropriate characteristic word (ignitability, corrosivity, reactivity, or toxicity) or "D" code number may be used in association with the basic description. to identify he substance 49 CFR 172.203(c). See 172.203(k)(4) for exceptions

- The original copy of the waste manifest must be dated by , and bear the handwritten signature of, the person representing the shipper (generator) and initial carrier. See 172.205(c)

- When a package containing hazardous material is offered for transportation by air, and transportation by passenger-carrying aircraft is prohibited, enter the words "Cargo aircraft only" after the basic description per 49 CFR 172.203(f)

- Shipping papers for railcars containing hazardous material must meet the requirements of 49 CFR 172.203(g)

- If the proper shipping name(s) ends in NOS and is listed in 49 CFR 172.203(k) (for example, generic names or hazard class names), the technical name(s) must be entered in parentheses in association with the basic description

- If the package contains poisons and are not otherwise described in the proper shipping name, enter the word **poison** or **toxic** in association with the shipping description (49 CFR 172.203(m))

- If a material meets the characteristics of poison inhalation hazard, enter the words "poison-inhalation hazard," and the words **"Zone A," Zone B," "Zone C or "Zone D,"** immediately following the shipping description.(49 CFR 172.203(m)(3))

- Enter and sign manually or mechanically, the shipper's certification (49 CFR 172.204). See next bullet for hazardous waste certification information.

- Use the Hazardous Waste Manifest when hazardous waste is offered for transport, transported, transferred, or delivered, and manually sign the certification. (49 CFR 172.205 and 40 CFR 262.20 through 23)

- As a general rule, when a shipping paper bears a DOT-E exemption notation (49 CFR 172.203 (a)), the shipper must be a party to that exemption in order to use it.

Note: Emergency response information **must** be provided as required by 49 CFR Subpart G, 172.602

Placarding requirements for a vehicle are based on the primary hazard class/division of the hazardous material being shipped (49 CFR, Subpart F). However, some hazard classes/divisions do not require placarding of the vehicle regardless of quantity. As indicated in 49 CFR 172.500 (b), placarding is not required for:

- Class 9, miscellaneous hazardous materials (domestic applications only) when prepared for transportation in accordance with 49 CFR 173.13. Also refer to 172.504(f)(9)

- Limited quantities

- Other Regulated Materials (ORM-D)

- Infectious substances (division 6.2)

- Combustible liquids in non-bulk packaging

Two (2) placarding tables are found in 49 CFR 172.504. **Table 1 materials in *any* quantity require placarding.** Table 1 materials include:

- Division 1.1, 1.2, and 1,3 explosives

- Division 2.3 poison gas

- Division 4.3, material considered dangerous when wet

- Division 6.1, packing group, (inhalation hazard only)

- Radioactive material packages labeled RADIOACTIVE YELLOW III

- Exclusive use shipments (shipments loaded and transported with instructions in the same transport vehicle) of low specific activity radioactive material or surface contaminated objects in accordance with 49 CFR 173.427(a) (6)

Materials listed in **Table 2**, (or any combination of these materials) require the vehicle to be placarded when the gross aggregate weight (package(s) plus contents) of the hazardous material meets or exceeds 1001 pounds (454 kilograms)(see 49 CFR

172.504(a) through (g). However, when 5000 pounds (2268 kilograms) of one hazard class/division is loaded onto a transport vehicle at one loading facility, the placard specified in **Table 2** for that hazard class/division must be applied. (See 49 CFR 172.504(b).

Table 2 materials include:

- Division 1.4, 1.5, and 1.6 explosives
- Division 2.1 flammable gas
- Division 2.2 non-flammable gas
- Division 3 flammable liquids
- Combustible liquids (in bulk packaging meeting or exceeding 1001 pounds (454 kilograms) gross aggregate weight)
- Division 4.1 flammable solids
- Division 4.2 spontaneously combustible material
- Division 5.1 oxidizers
- Division 5.2 organic peroxide
- Division 6.1 (packing group I or II, other than packing group I inhalation hazards)
- Division 6.1, packing group III
- Division 8 corrosive
- Class 9 miscellaneous hazardous material

According to 49 CFR 172.502 (c): "Placards may be displayed for a hazardous material, even when not required, if the placarding otherwise conforms to the requirements of this subpart (i.e., 49 CFR 172, Subpart F)."

Placarding for subsidiary hazards is found in 172.505 and includes Poison-Inhalation, Corrosive, Dangerous When Wet requirements for placarding.

Note: additional placarding requirements for shipment of hazardous material by rail are found in 49 CFR 172.508 and 172.510; placarding requirements for bulk packaging other than tank cars are found in 49 CFR 172.514.

10.4 Radioactive Material Packaging and Transportation

This section identifies DOE requirements for packaging and transportation of radioactive materials based on federal regulations, DOE orders, and other applicable regulations and requirements. DOE contractor personnel, responsible for performing radioactive material packaging and transportation operations and activities, must comply with all applicable DOE orders referenced in this chapter, section 10.2, "Applicable Transportation and Packaging Regulations", specifically DOE Orders 460.2, 460.1A, and associated Contractor Requirements Documents and Implementation Guides, as applicable.

DOE Order 460.2, requires radioactive material to be prepared, packaged, and transported in compliance with applicable DOT regulations found in 49 CFR, specifically Parts 100 through 185, and Parts 383 through 399. DOT regulations governing packaging and transportation of radioactive material apply to interstate and intrastate commerce where the public has free and unrestricted access. Unless DOE Heads of Field Elements approve alternatives that provide equivalent protection to DOT Regulations (see DOE Order 460.1A), DOT regulations apply also to packaging and transportation of radioactive material on roadways determined to be onsite where the public is restricted from access, Refer to Section 10.7 for more information regarding onsite shipments of hazardous materials.

10.4.1 Radioactive Material Classification

Radioactive material (Class 7), as defined in 49 CFR, Part 173, Subpart I, 173.403, "means any material having a specific activity greater than 70 Bq/g (0.002 microcuries per gram (µCi/g))."Specific activity, according to DOT, "means the activity of the radionuclide per unit mass of that nuclide. The specific activity of a material in which the radionuclide is essentially uniformly distributed is the activity per unit mass of the material." (See 49 CFR, 173.403). DOT begins regulating radioactive material for purposes of transportation in quantities greater than 70 Bq/g (0.002 µCi/g) of activity. At this baseline quantity, DOT regulations for the packaging and transportation of radioactive material apply.

Radioactive materials are packaged and transported in many different categories prescribed by the DOT Regulations. Following are the most common categories:

- All radioactive material is in either **"Special Form," or "Normal Form."** These terms are expressed using the values derived in 49 CFR 173.433, "Requirements for determination of A1 and A2 Values for Radionuclides," or the values listed for a given radionuclide in 49 CFR 173.435, "Table of A1 and A2 Values for Radionuclides." The activity or value derived (using 49 CFR 173.433) for a radionuclide or mixture of radionuclides, or the activities listed in the table for any given radionuclide (49 CFR 173.435), represent a maximum quantity or activity of radioactive material that can be packaged and transported as a Type A quantity in a Type A package.

  Special Form is represented by the values identified as **A1**.

  - A1 means the maximum activity of special form radioactive material permitted in a Type A package. See 49 CFR 173.403.

Normal Form is represented by the values identified as **A2**.

- A2 means the maximum activity of radioactive material, other than special form permitted in a Type A package. See 49 CFR 173.403.

- **Type A Package** means a Type A package, together with its radioactive material contents limited to A1 or A2 quantity as appropriate. See 49 CFR 173.403 *package* definition.

- When an A1 or A2 quantity value is exceeded for a radionuclide or mixture of radionuclides, the category of radioactive material becomes Type B (greater than one A1 or one A2). Type B quantities of radioactive material require Type B packaging. See 49 CFR 173.403 *package* definition.

- **Type B Packaging** means a packaging designed to retain the integrity of containment and shielding required by 49 CFR, Part 173 when subjected to the normal conditions of transport and hypothetical accident test conditions set forth in 10 CFR Part 71 "Energy." See 49 CFR 173.403 *package definition.*

- **Industrial package** means a packaging that, together with its low specific activity (LSA) material or surface contaminated object (SCO) contents, meets the requirements of 49 CFR 173.410 and 173.411.

- **Highway Route Controlled Quantity (HRCQ)** means a quantity within a single package that exceeds 3000 X the A1 (Special Form) or A2 (Normal Form) value, or exceeding 1,000 TBq (27,000 curies, whichever is least. See 49 CFR 173.403 and 173.435.

- **Limited Quantity** radioactive material represents a level of activity that is 1000 X less than an A1 or A2 value for solids, and 10,000 X less than an A1 or A2 for liquids. See 49 CFR 173.403, and 173.425. This category of radioactive material can be shipped in a strong tight package (excepted package) that will not leak any of the materials under normal conditions of transportation. See 49 CFR 173.421 and 173.422.

- **Low Specific Activity (LSA)** and **Surface Contaminated Objects (SCO)** radioactive materials are identified in 49 CFR 173.403. LSA material must be in one of three catagories, LSA-1, LSA-2, or LSA-3, Solids (e.g., consolidated wastes, activated materials). Surface Contaminated Objects (SCO) means a solid object which is not itself radioactive but which has Class 7 material distributed on any of its surfaces. SCO must be in one of two groups with surface activity not exceeding the limits in 173.403 for SCO I or II. *Note: NUREG-1608 RAMREG-003 provide additional guidance in preparing LSA and SCO for shipment in compliance with Federal Regulations.*

- **Radioactive Instrument and Article** means any manufactured item such as a clock, instrument, electronic tube, or apparatus, or similar instrument and article having Class 7 (radioactive) material in gaseous or non-dispersible solid

form as a component. Determination requirements for instruments and articles are found in 49 CFR 173.424, the table of activity limits is in 49 CFR 173.425, and the definition is in 173.403.

- Other categories also exist based on specific, proper shipping name listings and packaging characteristics (i.e., excepted packages) in the Hazardous Material Table in 49 CFR 172.101.

Based on these categories of radioactive material and other materials classified as radioactive material, there are several proper shipping names in the Hazardous Materials Table (HMT) in 49 CFR 172.101 that can be used. They are as follow:

- Radioactive material, excepted package-articles manufactured from natural or depleted uranium or natural thorium
- Radioactive material, excepted package-empty packaging or empty packaging
- Radioactive material, excepted package-instruments or articles
- Radioactive material, excepted package-limited quantity of material
- Radioactive material, fissile, n.o.s.
- Radioactive material, low specific activity, n.o.s., or Radioactive material, LSA, n.o.s.
- Radioactive material, n.o.s.
- Radioactive material, special form, n.o.s.
- Radioactive material, surface contaminated object or radioactive material, SCO
- Thorium metal, pyrophoric
- Thorium nitrate, solid
- Uranium hexafluoride, (*fissile excepted or non-fissile)*
- Uranium hexafluoride, fissile (with more than 1% U-235)
- Uranium metal, pyrophoric
- Uranyl nitrate hexahydrate solution
- Uranyl nitrate, solid

Selection of a proper shipping name for Class 7 materials is a process of elimination, based on the proper shipping names listed above. When a proper shipping name for radioactive material is specifically listed in HMT 172.101, for the material to be packaged and transported (e.g., Uranium metal, pyrophoric; Thorium nitrate, solid), the proper shipping name selection is straight forward. When the material is not specifically listed in the table, proper shipping name selection must be based on the category of material (i.e., Type A, Type B, limited quantity), and characteristics of the material or package limitations (i.e., fissile, special form, mixture of radionuclides, excepted packages, etc.). In these situations, use the excepted package proper shipping names, based on type and quantity of radioactive material: Radioactive material, nos; radioactive material, LSA, nos; or radioactive material, fissile, nos.

In addition, **radiation level limitations** specified in 49 CFR 173.441, and **contamination control** levels specified in 49 CFR 173.443 may impact the proper shipping name selection and/or authorization of radioactive material for shipment.

For radioactive material mixed with other hazardous material, **all hazards in the package must be considered**. Typically, when multiple hazards exist in a package (including radioactive material) and the radioactive material is considered limited quantity, the primary hazard will be the other hazardous constituent(s). The material will be packaged, transported, and communicated based on the primary hazard. If radioactive material is the primary hazard (i.e., greater than limited quantity in the package), then radioactive material (Class 7) is the primary hazard, and the material will be packaged, transported, and communicated as radioactive material.

10.4.2 Radioactive Material Packaging

For radioactive materials, the term **packaging** means, for Class 7 materials, the assembly of components necessary to ensure compliance with the packaging requirements of 49 CFR, Subpart I. See 49 CFR 173.403. The packaging may consist of one or more receptacles, absorbent materials, spacing structures, thermal insulation, radiation shielding, service equipment for filling, emptying, venting and pressure relief, and devices for cooling or absorbing mechanical shocks. The term **package** means, for Class 7 materials "the packaging together with its radioactive contents as presented for transport." See 49 CFR 173.403. The conveyance, tie-down system, and auxiliary equipment may sometimes be designated as part of the packaging.

General design requirements for radioactive material packaging are found in 49 CFR 173.410. With the exception of limited quantity materials and instruments or articles discussed under 49 CFR 173.421 through 173.424, all radioactive material packagings must be designed in accordance with the general design requirements in 173.410.

Additional radioactive material packaging design requirements are found in the following:

- Industrial Packages (IP) See 173.411.

- Additional design requirements for Type A packages are found in 49 CFR 173.412. See 49 CFR 173.412 (k) for liquids and 173.412 (l) for gases.

- Design, and test requirements for Type B packages are found in 10 CFR 71.

Radioactive material packaging test requirements are similar in nature to Performance Oriented Package testing. In both instances, the testing requirements are performance based.

Testing requirements for radioactive material packagings are found in the following regulations:

- Type A packaging requirements are stated in 49 CFR 173.465 and 173.466. Type A packaging is subjected to the following tests:

  - Water spray test
  - Free drop test
  - Stacking test (compression)
  - Penetration test

- Tests for demonstrating the ability of Type B and fissile packaging are identified in 10 CFR 71, Subpart F. Type B packaging and fissile material packaging must be tested based on normal conditions of transportation per 10 CFR 71.71 and hypothetical accident conditions per 10 CFR 71.73. 49 CFR 173.471 and 173.472 provides additional information on NRC approved packages.

- Packaging used to transport **small quantities** of radioactive material mixed with one or more of the hazard classes identified in 49 CFR 173.4 must be tested to requirements identified therein.

Based on design and testing criteria, the DOT authorizes the use of certain Type A, Type B, and fissile radioactive material packaging including the following:

- Packaging authorized specifically for Type A radioactive material (i.e., DOT 7A packaging) not exceeding one A1 or one A2 in quantity (see 49 CFR 173.415)

- In addition to Type B packaging designed and tested in accordance with 10 CFR 71 requirements, DOT authorizes certain specification packaging for Type B radioactive material (i.e., material in a quantity greater than one A1 or one A2) (see 49 CFR 173.416)

- Specification packaging authorized for fissile materials not exceeding one A1 or one A2 (see 49 CFR 173.417)

- Additional packaging authorized by DOT include:

- Packaging for pyrophoric radioactive materials per 49 CFR 173.418

- Packaging for oxidizing radioactive materials per 49 CFR 173.419

- Packaging for Uranium hexafluoride (fissile low specific activity) per 49 CFR 173.420

Refer to DOE website (see page 6) for report *"Recommendations for Meeting DOT Requirements for Strong and Tight Containers and Industrial Packaging"*.

10.4.3 Communication Requirements for Radioactive Material

Marking requirements for radioactive material packages are found in 49 CFR 172.301 and 172.310 and are as follow:

- **Proper Shipping Name**

- **UN or NA identification number**

- **Shipper or receiver's name and address**

- The letters **"RQ"** in association with the proper shipping name if the radioactive material in one package is greater than or equal to the amount specified for a given radionuclide in 49 CFR 172.101, Appendix A, Table 2; or is greater than or equal to the amount derived from following requirements of paragraphs 5 and 6 at the beginning of Table 2

- If the material is also a **Poison-Inhalation Hazard**, the marking "Inhalation Hazard" is required, unless it appears on the label or placards

Other marking requirements from 49 CFR 172.310 include the following:

- If the package weighs in excess of 50 kilograms (110 pounds), the **gross mass** must be marked on the outside of the package

- Any package that conforms to the requirements for a Type A or Type B packaging must be marked **"Type A,"** or **"Type B,"** as appropriate on the outside of the package

- Each Type B, Type B(U) or Type B (M) packaging must be marked on the outside of the package with a radiation symbol that conforms to the requirements of Appendix B to Part 172

- Each package destined for export shipment (shipment to another country) must also be marked **"USA"** indicating the country where the package was certified

Labeling requirements for radioactive material packages are found in 49 CFR 172.403.

In addition to the above basic description requirements, and depending on the radioactive material being packaged and transported, additional entries are required per 49 CFR 172.203, 172.204, and 172.604:

- Name of each radionuclide in the radioactive material
- Description of the physical and chemical form of the material (not required for special form)
- Amount of activity in the package in SI units or SI units followed by customary units
- The words "Highway Route Controlled Quantity" if applicable
- Category of labels applied to the package (e.g., RADIOACTIVE-WHITE I, -YELLOW II)
- Transport index assigned to each package
- For fissile shipments, refer to 172.203 (d)(7)
- For exclusive use shipments, all descriptions on the shipping paper must be consigned as exclusive use and the statement "Exclusive Use Shipment" may be entered only once, clearly visible, on the shipping paper (172.203 (d) (10)
- If a package has been approved by DOE or the Nuclear Regulatory Commission (NRC): the identification marking requirement is found in 172.203 or 173.471. This requirement applies to all Type B packaging, and a limited amount of Type A packaging
- For a shipment of low specific activity material or surface contaminated objects, the appropriate group notation of LSA-I, LSA-II, LSA-III, SCO-I, or SCO-II (49 CFR 172.203 (d) (11)
- Shippers certification (49 CFR 172.204)

Placarding requirements for radioactive material shipments are found in 49 CFR 172.504. Three situations require placarding of vehicles transporting radioactive materials:

- When a package requires RADIOACTIVE YELLOW-III labels (49 CFR 172.403)
- For exclusive use shipments of Class 7 LSA/SCO (49 CFR 173.427)
- When a HRCQ of radioactive material (49 CFR 173.403(l) and 172.507) is shipped by highway only, the vehicle must have the required RADIOACTIVE placard placed on a white square background (see 49 CFR 172.527)

Placarding for other radioactive material shipments is allowed under DOT regulations as long as the Class 7 radioactive material hazard is actually present as a part of the shipment (172.502 (c)).

Note: Placarding requirements for radioactive material shipments by rail are found in 49 CFR 172.508. Placarding requirements for freight containers and aircraft unit load devices containing radioactive material with a capacity of less than 18m3 (640 cu ft.) are found in 49 CFR 172.512 (b)(2).

10.5 Routing

Routing hazardous material shipments by highway (49 CFR, Part 397).
These regulations require that vehicles transporting hazardous material be operated in compliance with federal, state, tribal, and local laws. Subpart C specifies routing requirements of non-radioactive shipments and Subpart D specifies requirements for transporting Class 7 (radioactive). Preemption procedures reside in Subpart E.

Routing requirements for Class 7 radioactive material (49 CFR 397, Subpart D).
Carriers operating motor vehicles transporting placarded loads of radioactive material shall meet the following requirements of 49 CFR 397.101(a):

- Ensure that vehicle is operated on routes that minimize radiological risk
- Consider available information on accident rates, transit time, population density and activities, and the time of day and the day of week during which transportation will occur to determine the level of radiological risk
- Inform driver which route to take and that the motor vehicle contains Class 7 (radioactive) materials

Carriers operating motor vehicles transporting HRCQ shall also meet the requirements of 49 CFR 397.101(b) through (g):

- Ensure that **HRCQ** radioactive materials, defined by 49 CFR 173.403, are transported only over preferred routes (49 CFR 397.101 through 397.103). DOE requires the shipper, on behalf of the DOE and/or the carrier, to provide a shipment plan with routing identified to DOE Headquarter National Transportation Program (NTP) 45 days in advance of all HRCQ radioactive material shipments. The carrier shall provide a written route plan to the shipper and the driver prior to departure (49 CFR 397.101(d)). The contents of this route plan are identified in 49 CFR 397.101(d), (1) and (2)
- Deviation from preferred routes is authorized only under certain conditions identified in 49 CFR 397.101(c)
- **Unclassified high-level radioactive waste shipments and spent nuclear fuel shipments** made on behalf of DOE (by all modes of transportation, including highway) require written notification 7 days in advance of the shipment(s) to

the designated representative of states through which the shipment(s) will pass. This advance written notification will include a listing of routes used for shipment within each state (10 CFR 71.97 and DOE O 460.2)

- Domestic shipments (by all modes of transportation, including highway) of nuclear explosives, Category I and II quantities of special nuclear materials (SNM), and "cargos of opportunity," meeting National Security Exemption status, such as bulk shipments of classified matter, weapons, and category III and IV SNM are not subject to DOT regulations if transported under the National Security Exemption, per 49 CFR 173.7(b). These shipments are subject to physical security requirements of DOE Order 5632.1C. **Scheduling and routing of these shipments is coordinated by the DOE Albuquerque Field Office.**

DOE utilizes various centers of information to select safe and reliable motor carriers and to select preferred routes for all types of shipments. DOE/NTP administers the Motor Carrier Evaluation Program (MCEP) to formally document the condition of motor carriers and their ability to transport ***particular*** materials on behalf of DOE. Through this program, motor carriers are evaluated and rated based on their ability to operate safety, efficiently, and in compliance with applicable regulations.

DOE also utilizes several computer programs and databases to compile and analyze data and information regarding transportation and routing of radioactive material shipments.

Rail routing and water vessel routing of hazardous materials is used by DOE for certain shipments where over-the-road transportation is not technically or economically feasible. Rail and water are sometimes the only options for transportation of over-sized and over-weight components containing radioactive or other hazardous material.

Standard routing requirements apply to most hazardous material shipments by rail with the exception of the following:

- Unclassified, high-level, radioactive waste and spent nuclear fuel shipments require:
  - Time, distance, the number of carriers and interchanges in route to be minimized
  - Use of the best track class available for speed and safety
  - Use of routes where exposure of the public to the shipment is minimized
  - Obtaining of rail-routing printouts to consider alternate routes
  - Scheduling of shipments in populated areas during off-peak commuter hours

- Division 1.1 and 1.2 Explosives require that the initial rail carrier ascertain if a shipment destined for a point beyond initial carrier rail lines can go forward by the route designated Refer to 49 CFR 174 for rail requirements.

Transportation regulations for hazardous material by water vessel are found in 49 CFR Part 176 and the International Maritime Dangerous Goods Code (IMDG). This mode of transportation is considered the best option for transportation of large reactor components, and a viable option for transportation of high-level radioactive waste and spent nuclear fuel on inland, coastwise, and inter-coastal waters.

Transportation of hazardous material by air is subject to the requirements of 49 CFR Part 175, the International Civil Aviation Organization (ICAO) Regulations, and the International Air Transport Association (IATA) Dangerous Goods Regulations. The IATA regulations are based on ICAO regulations, and constitute a manual of industry carrier regulations to be followed by all airlines who belong to IATA. With the exception of certain flight operations (e.g., Ross Aviation who operates under the supervision and contract administered by the DOE) involving radioactive material shipments transported under the National Security Exemption (NSE)[see 49 CFR 173.7 (b)], all hazardous material shipments by air (including radioactive material shipments) must meet DOT Regulations, ICAO Regulations, and IATA requirements when applicable for transport. DOT requirements apply to "Cargo of Opportunity" not meeting the NSE when shipping by Ross Aviation.

IATA regulations specifically state in Section 1., paragraph 1.2.4 (January 1999, 40th edition) that the IATA regulations do not require an operator (airline) to transport a particular article or substance; nor do the regulations prevent an operator from imposing special requirements on the transport of a particular article or substance over and above the requirements of IATA. Therefore, when routing hazardous material and radioactive material shipments that are critical to programmatic and regulatory compliance (e.g., environmental samples, or isotopes for medical use) it is important for the shipper to verify in advance of the shipment, the availability of the operator to transport the material; the services the operator will and will not provide (e.g., signature of security services for environmental samples); and the fastest, most cost-effective routing available by air.

10.6 Emergency Response and Reporting

When accidents and incidents involving hazardous material transportation occur, local police officers and fire fighters are usually first on the scene. Initial response action is based on emergency response training which responders have received and information made available with the shipment. DOT required shipping papers (see 49 CFR 172.201, 172.600, and 172.602) and associated information (e.g., MSDSs, and Emergency Response Guides distributed by DOT) is the focus of most first-responder training, which becomes the key to effective, initial response actions. It is imperative that this information is accurate and accessible to emergency responders (see 49 CFR 172.606 and 177.817). DOE requires that all other hazardous material communication requirements of 49 CFR Part 172 (i.e., marking, labeling, and placarding) are accurate to ensure that responders are able to safely mitigate public, environmental, and economic dangers resulting from accidents involving transportation of hazardous material.

The DOE Emergency Management System (EMS) is set forth in DOE Order 151.1. This order establishes the requirement for DOE to maintain a transportation emergency preparedness capability that enhances the EMS through integrating transportation emergency preparedness.

Responsibilities identified in DOE Order 151.1 specify the requirement for planning to ensure proper DOE response to transportation incidents involving DOE shipments. The assignments in DOE 151.1 also ensure that DOE is capable of performing the functions delegated to DOE in the National Contingency Plan (NCP) and the Federal Radiological Emergency Response Plan (FRERP) to provide technical advice and assistance as needed for any transportation incident involving radioactive or mixed hazardous materials.

DOE Order 5530.3 establishes a nationwide Radiological Assistance Program (RAP) that is administered by DOE regional offices. Through this program, when requested, the regional offices furnish information to emergency responders and as required, dispatch Radiological Assistance Program (RAP) teams to the scene of radiological accidents and incidents.

Transportation-related emergencies involving hazardous material require accident and spill reporting. Regulations and requirements mandating the reporting of hazardous material accidents and spills are as follows:

- **49 CFR 171.15, Immediate notice of certain hazardous materials incidents.**

  This section requires each carrier who transports hazardous materials to give, at the earliest practicable moment, notice to the DOT concerning incidents which as a direct result of hazardous material:

  - A person is killed; or
  - A person receives injuries requiring hospitalization; or
  - Estimated carrier or other property damage exceeds $50,000; or
  - An evacuation of the general public last one or more hours; or
  - One or more major transportation arteries or facilities are closed or shut down for one hour or more; or
  - The operational flight pattern or routine of an aircraft is altered; or
  - Fire, breakage, spillage, or suspected radioactive contamination occurs involving shipment of radioactive material; or
  - Fire, breakage, spillage, or suspected contamination occurs involving shipment infectious substances (etiologic agents); or
  - There has been a release of a marine pollutant in a quantity exceeding 450 L (119 gallons) liquids or 400 kg (882 pounds) solids; or
  - A situation exists of such a nature that in the judgement of the carrier should be reported to the Department even though it does not meet the previous reporting criteria.

Note: EPA requires persons in charge of facilities (including transport vehicles, vessels, and aircraft) to report any release of a hazardous substance greater than or equal to a reportable quantity to the U.S. Coast Guard National Response Center (toll free) at 1-800 -424-8802 or (toll) 202-267-2675 (see 40 CFR 302.6).

- **49 CFR 171.16, Detailed hazardous materials incidents reports.**
  This section requires each carrier who transports a hazardous material to report in writing, in duplicate, on DOT Form F, 5800.1 to DOT within 30 days of each incident identified in 49 CFR 171.15(a) or any unintentional release that:

  - Occurs during the course of transportation (including loading, unloading, and temporary storage), or

  - Occurs as a result of or when there has been an unintentional release of hazardous materials from a package, or any quantity of hazardous waste discharged during transportation. If the report pertains to hazardous waste discharge, the requirements of 49 CFR 171.16 (a), (1) through (3) apply.

NOTE: Section 171.16(b) establishes requirements for making carrier reports and 171.16(c) establishes reporting exceptions.

must be documented in site-specific documentation and approved by the appropriate DOE Field Office. Reference Section 10.4 and DOE Order 460.1A, Section 4, b. for additional information for onsite shipments of hazardous materials.

10.8 Training

Hazardous material training requirements for employees are based on the functions that the employee performs. First, determine whether or not an employee meets the definition of a hazardous material employee ("Hazmat" employee) per the DOT regulations. A hazmat employee is defined in 49 CFR 171.8 as follows:

> "Hazmat employee means a person who is employed by a hazmat employer (note: see the definition of a hazmat employer also in 49 CFR 171.8) and who in the course of employment directly affects hazardous materials transportation safety. This term includes an owner-operator of a motor vehicle which transports hazardous materials in commerce. This term includes an individual, including a self-employed individual, employed by a hazmat employer who, during the course of employment:
>
> (1) Loads, unloads, or handles hazardous material;
> (2) Manufactures, tests, reconditions, repairs, modifies, marks, or otherwise represents containers, drums, or packagings as qualified for use in the transportation of hazardous materials;
> (3) Prepares hazardous materials for transportation;
> (4) Is responsible for safety of transporting hazardous materials; or
> (5) Operates a vehicle used to transport hazardous materials.

The regulations for hazardous materials transportation training are identified in 49 CFR 172, Subpart H. This subpart requires that a systematic program be available to ensure that hazardous material employees are trained and tested per the following:

- Familiarize hazardous material employees with the general provisions of the hazardous material regulations. Design the training to enable employees to recognize and identify hazardous materials consistent with the DOT hazard communication standards. See 49 CFR 172.704 (a)(1)

- Provide each hazardous material employee with function-specific training concerning requirements of the DOT regulations that are specifically applicable to the functions the employee performs. See 49 CFR 172.704 (a), (2)

- Give each hazardous material employee safety training concerning emergency response, measures to protect the employee from the hazards associated with hazardous materials in the work place, as well as methods and procedures to avoid accidents. See 49 CFR 172.704 (a), (3)

- Train each hazardous material employee who is involved in motor vehicle operations according to applicable requirements. See 49 CFR 177.816, and 49 CFR Parts 383, 387, and 390 through 399

Note: In addition to general hazardous material training for all modes of transportation, other mode specific training requirements are specified in the following regulations.

- Training requirements for transportation by aircraft are found in 49 CFR 175.20, "Compliance and Training"

- Training requirements for water vessel transportation are found in 49 CFR 176.13, "Responsibility for Compliance and Training"

- Training requirements for highway transportation are found in 49 CFR 177.800, 177.816, and 390-397

Additional training for hazmat employees involved in handling hazardous waste specific to EPA requirements are found in 40 CFR 264.16, "Personnel Training." This training is prescribed for employees working in treatment, storage, and disposal facilities. Training is also prescribed for employees who work in facilities considered in Interim Status where treatment, storage, or disposal takes place (see 40 CFR 265.16, "Personnel Training".)

The regulatory requirements of OSHA are specified in 29 CFR 1910.120 and 1910.1200. OSHA identifies training (i.e., worker right-to-know) that must be given to employees involved in the handling of hazardous materials, including hazardous waste, in the work place.

DOT initial and recurrent training requirements are found in 49 CFR 172.704 (c). Required initial and recurrent training is as follows:

- A new hazmat employee or a hazmat employee who changes hazardous materials job functions shall complete training within 90 days after employment or a change in job function

- A hazmat employee, prior to completion of required training within the 90-day period, may perform hazardous materials job functions prior to completion of training under the supervision of a properly trained and knowledgeable hazmat employee

- A hazmat employee shall receive required training at least once every 3 years

Record keeping requirements for training records are found in 49 CFR 172.704(d). DOE Order 1324.2A "Records Disposition" requires that files containing training records associated with hazardous material follow the retention periods and record content requirements established by the National Archives and Records Administration (NARA). In addition to DOE records retention requirements, the following is required:

- A record of current training, inclusive of the preceding three years shall be created and retained by each hazmat employer for as long as that employee is employed by that employer as a hazmat employee and for 90 days thereafter. The record shall include the following information:

  - Hazmat employee's name;
  - Most recent training completion date of the hazmat employee's training;

- Description, copy, or location of the training materials used to meet the requirements of 49 CFR 172.704 (a);
- Name and address of the person providing the training; and
- Certification that hazmat employee has been trained and tested as required by Subpart H.

Please note that IATA training and recurrent training requirements are found in Section 1.5 of the IATA Dangerous Goods Regulations. IATA requires recurrent training within 24 months.

The DOE, specifically the National Transportation Program (NTP), offers a variety of transportation related training. Training is available for both general and hazardous materials transportation. Areas include training and testing in the classification, packaging, and transportation of hazardous material and hazardous waste. This training is designed to meet the needs of hazmat employees who classify, package, certify, and transport hazardous materials and hazardous waste on behalf of the DOE.

Training is available in a number of formats including Computer Based Training (CBT), cost reimbursed site specific training, and at DOE NTP sponsored workshops at various locations each year. DOE developed training has also been made available to other entities (for example, the DOT) for use in their training endeavors.

For a catalog and registration information on courses currently available please call 505-845-5241 or 509-376-7905.

NTP will offer other types of packaging and transportation training courses and workshops as needed in the future.

10.9 STAKEHOLDER INVOLVEMENT

DOE is committed to the safe and efficient packaging and transportation of its hazardous materials, including radioactive materials and hazardous wastes. DOE programs involved in transportation include:

- Defense Programs,
- Environmental Management,
- Nuclear Energy/Naval Reactors,
- Civilian Radioactive Waste Management,
- Nonproliferation and National Security, and
- Field Offices.

The National Transportation Program Albuquerque (NTP/AL) has established a three-tier resolution approach for identifying and resolving transportation issues. This process is based on strong national stakeholder involvement in the decision making process. An effective interface with national stakeholder groups and State, Tribal, and local governments is crucial to its success.

The first tier includes the formal National Environmental Policy Act (NEPA) process of Environmental Assessments, Environmental Impact Statements, and public meetings for actions which could adversely affect the environment. DOE solicits and incorporates both internal and external stakeholder opinion for NEPA actions.

The second and third tiers of the resolution approach build on stakeholder participation. The second tier involves the development of National Transportation Plans by DOE programs for each waste and material type (e.g., spent nuclear fuel, low-level waste, mixed low-level waste, and TRU waste), thereby institutionalizing the overall transportation planning process. The third involves implementation of the transportation plans with the development of site- and material-specific plans for each waste site.

NTP/AL sponsors and participates in key forums to obtain input, resolve issues, and work on detailed transportation plans:

- **Senior Executive Transportation Forum** – Composed of DOE senior program officials, this internal coordination group reports to the Deputy Secretary and was established to address cross-cutting transportation issues and develop consistent approaches and policies for transportation of DOE materials. Some of the issues being addressed by the Forum include enhanced communication about all DOE transportation activities; integrated transportation information systems/projected shipment information; funding and technical assistance/current status; emergency management system training; packaging quality assurance; transportation protocols, Memorandums of Understanding with other Federal agencies; and point-of-contact for DOE transportation information.

- **Transportation External Coordination Working Group (TEC/WG)** – TEC/WG is a chartered external stakeholder coordination group whose membership includes representatives

Transportation Program to develop Transportation Plans for specific shipments that detail roles and responsibilities for all parties, including State, Tribal and Local governments, DOE, the carrier, and other Federal agencies. Information Plans are developed as part of the Transportation Plans and detail how the general public will be informed.

- **Transportation Tribal Initiative** – Once developed, this program will focus on improving communication between DOE and Tribal governments on transportation-related issues. In support of and in accordance with the ***DOE American Indian Policy***, discussions will center on formalizing approaches to government-to-government consultations and how DOE can best provide technical and other assistance to build and strengthen partnerships with Tribal governments whose lands and interests may be impacted by shipping activities.

Information and Outreach

Wise decision making is based on good judgment and accurate, up-to-date information. DOE is committed to providing its stakeholders with objective basic transportation information. Transportation-related information products include newsletters, booklets, fact sheets, videos, exhibits, and other media for distribution at public meetings, training sessions, and through requests made directly to DOE information resource centers.

Many DOE programs with transportation interests have information resource centers, including the Center for Environmental Management Information in Washington, DC; the Alliance for Transportation Research at the University of New Mexico in Albuquerque, NM; the National Transuranic Waste Program in Carlsbad, New Mexico; the Office of Civilian Radioactive Waste Management's National Information Center in Washington, DC.

In addition, DOE sponsors many HomePages that provide transportation information on the Web, including a National Transportation Program HomePage (See page 6). At these sites, stakeholders can get the latest packaging and shipping information. They can download fact sheets, charts, summary reports, Federal regulations, and DOE Directives. Points-of-contact are listed for individual transportation programs, and links to other transportation-related sites are provided. Prospective shipment information is available to Traffic Managers to assist in better planning. It is updated and provided through the Assistant Secretary for Environmental Management on a monthly basis.

Internal stakeholders (DOE and contractor staff) benefit from a wide range of training and technological advances. DOE staff are provided with training at all levels of transportation planning and emergency response, so that they may learn to more effectively communicate with stakeholders during routine shipments and support State, Tribal, and local responders during a transportation accident involving radioactive materials.

Computer-based systems such as the Transportation Information Network provide valuable information to aid users in shipment projections, shipment preparation, routing modeling, shipment tracking and communications, and records management. The TRANSCOM system combines satellite communications, computerized database management, user networks, and ground communications to follow the progress of en route shipments of hazardous materials.

As mentioned earlier, Regional Associations play an important role in the DOE decision-making process. The following list identifies some of the Regional Associations coordinating transportation issues with the NTP/AL:

* Southern States Energy Board Advisory Committee on Radioactive Materials Transportation,
* Western Interstate Energy Board,
* Western Governors' Association Technical Advisory Group for Waste Isolation Pilot Plant Transport,
* Councils of State Governments High-Level Radioactive Waste Committees, Midwestern and Northeastern Offices, and
* Environmental Management Advisory Board, Transportation Subcommittee.

To summarize, DOE's goal is to involve stakeholders by accepting them as legitimate partners in the shipping process. To achieve this goal, DOE and its contractors must continue to build upon its successes, learn from past mistakes, and explore new avenues of communication. This involves listening and sensitivity to stakeholder needs and concerns; honest, open and frank communication; working with the media for objective portrayal of program activities; and full utilization of existing communications technologies.

PART III

IMPORTS AND EXPORTS

CHAPTER 11

IMPORTS INTO THE UNITED STATES

11.1 INTRODUCTION

In addition to the regulations and procedures outlined in Chapters 11 and 12 governing general import and export practices, importers and exporters of hazardous materials must be fully aware of additional sources of regulations affecting the classification, packaging, documentation, and transport of such materials. Additionally, the international shipment of hazardous materials may be governed by the International Civil Aviation Organization (ICAO) Technical Instructions for shipment by air, the International Maritime Dangerous Goods (IMDG) regulations governing shipment by vessel, and the Transportation of Dangerous Goods (TDG) Regulations issued by the Government of Canada.

An open line of communication is necessary between all parties involved in a commercial import transaction to avoid problems that can occur after the shipment arrives in a United States port of entry. These may include:

- Assessment of excess duty through mis-classification or buying from nations that do not enjoy most-favored-nation status.

- Assessment of duty on a piece of foreign equipment (on which duty was previously paid) being returned to the United States after having been exported for repair or alteration by a foreign vendor, or assessment of duty on a complete article that is comprised, in part, of American goods previously exported.

- Detention of urgently needed goods at the port for lack of correct documentation. (The appropriate action for missing documents is to post a bond until the documents can be produced [19 CFR 141.66].)

- Penal sanctions affecting the importer through inaccurate or misleading statements of fact or omissions of required information even though unintentional. Mismarking is subject to additional duty of 10%.

- Duty-free entry of scientific instruments or apparatus provided that: (1) the application (Form ITA-338P) is executed in the name of the U.S. Department of Energy (DOE) and is signed by a cognizant official of the Department, and (2) the procurement document is executed by DOE. See Chapter 11, Section 11.17, of this manual for details.

- Duty-free entry of articles exported for scientific or educational purposes and returned to the United States (See 19 CFR 10.67 for details).

As an agency of the Federal Government, DOE enjoys certain privileges and exemptions from bonding requirements and regulations of the Customs Service.

- No bond or deposit of estimated duties or taxes is required to release a shipment if a stipulation of compliance in the name of DOE is filed with Customs. Customs will bill DOE after liquidation (19 CFR 141.102). However, a few DOE contractors import

under their own names. If they employ a customshouse broker, either their bond or the broker's bond can be used as surety.

The stipulation of compliance shall be in the following form:

> I, _____, _____ (title), a duly authorized representative of the _____ _____ (name of U.S. Government department or agency) stipulate and agree on behalf of such department or agency that all applicable provisions of the Tariff Act of 1930, as amended, and the regulations thereunder, and of all other laws and regulations, relating to ___ _____ _____ _____
>
> (type of entry)
>
> entry No. _____, of _____ (date) will be observed and complied with in all respects.
>
> _____
>
> (Signature)

- No bond is required to release shipments under an Immediate Delivery Permit provided that a stipulation in the form provided in 19 CFR 10.101 is filed with Customs.

- Certain source materials (Item 9808.00.5000 HTSUS) are accorded duty-free status when so certified by DOE in the form shown in 19 CFR 10.102.

- American goods returned (Item 9801.00.10 HTSUS) enjoy duty-free status when so certified on the letterhead of the Department or contractor in the form shown in 19 CFR 10.103. For better control, some contractors elect to register American goods to be returned on Customs Form 4455 when exported and execute Form 3311 when imported. Reference 19 CFR 10.67 for articles returned after having been exported for scientific or educational purposes. Use Forms 4455 and 3311 when applying these provisions.

11.2 CUSTOMS ORGANIZATION

The U.S. Customs Service has many duties other than the collection of duties taxes and fees on imported merchandise through the enforcement of Customs and related laws. Customs also administers certain navigation laws and treaties, combats smuggling and frauds on the revenues, and enforces the regulations of numerous other Federal agencies including DOE and the Nuclear Regulatory Commission (NRC).

The Customs Service staffs Ports of Entry in Puerto Rico, the Virgin Islands, and in every State in the Union except South Dakota and Wyoming. See 19 CFR 101.3 for Customs regions, districts, and ports. In addition, there are Customs Officers attached to United States embassies in most countries that are United States trading partners. Foreign exporters are encouraged to consult with these officers concerning United States Customs regulations.

11.2.1 Customs Regulations

Imports of goods into the United States are controlled by the following statutes and regulations:

- *Omnibus Trade and Competitiveness Act of 1988.*
- "Customs Duties," *Code of Federal Regulations* (CFR) 19, Chapter 1.
- *Harmonized Tariff Schedules of the United States* (HTSUS).

CFR 19 and HTSUS are published by the Government Printing Office and should be included in the reference library of any importer. Another publication of the Government Printing Office, *Importing into the United States*, written in laymen's language, is helpful in interpreting Customs regulations.

11.2.2 The Harmonized System

Importation into the United States is accomplished under the Harmonized System (HS), a classification system for goods moving in international trade. The HS went into effect in 1989 with the seventh edition of the HTSUS effective January 1, 1995. This publication can be purchased through the U.S. Government Printing Office, Washington D.C., under U.S. International Trade Commission (USITC) Publication 2831.

A. The Preface of this publication is important as it makes note of such things as new laws, concessions, and agreements that make up principal changes made to the current addition.

B. Pages 1-139 of the HTSUS contain:

General Rules of Interpretation	pp. 1-2
General Notes	pp. 3-131
General Statistical Notes	pp. 132-134
Notice To Exporters	pp. 135-139

The balance of the publication contains the Harmonized Tariff Schedule.

C. Nomenclature and basis for classification are uniform in the HS, but each country establishes its own rates of duty subject to agreements under the "General Agreement on Tariffs and Trade" (GATT) treaty.

D. "Essential Character" is the backbone of the classification criteria under the HS is defined as the role of the component or material in relation to use or function of the goods. For example, an office desk with a wooden top, steel legs, and *drawers* would be classified under 9403.10.00 as "metal furniture of a kind used in offices" inasmuch as it is the *drawers* rather than the top that gives the desk its essential character.

E. In the HTSUS, there is a logical progression in the grouping of commodities starting with raw materials and progressing through processing to finished goods. Example: Chapter 41, "Raw Hides and Skins (other than Furskins) and Leather"; Chapter 42, "Articles of Leather," etc.; Chapter 43, "Furskins and Artificial Fur; Manufactures thereof." Under the HS, "Goods" is always interpreted as "finished goods."

F. This philosophy of togetherness allows items normally sold and shipped with mixtures and sets to be classified as a single item. Example: A framed painting can be grouped under a single heading provided the frame is of a kind normally sold therewith, but not a $2,000 frame with a cardboard poster.

G. While there are still some specific entries for sets, i.e., 8206 "Hand Tool Sets," the HTSUS has a broad provision for the importation of nearly any merchandise put up as a set provided it meets the following definition:

"A multitude of items having a single function with a single classification."

- They must consist of at least two different articles that are classifiable under different headings.
- At the time of entry or export, they must be listed as a set suitable for retail sale.
- They must consist of articles assembled together to meet a particular need or carry out a specific activity.

Example: A pasta meal for two consisting of 0406 package of grated cheese, 1902 package of uncooked spaghetti, and 2103 can of tomato sauce would be classified as a set under 1902.

This also applies to systems with a single function and sold as a system.

H. There are six universal General Rules of Interpretation (GRI) and one United States GRI that are the keys to classification. Importers and exporters should be familiar with these rules as they appear in the General Rules section of the HTSUS. GRIs are hierarchical; that is, they must be considered in the order listed with GRI #1 having first priority.

I. Notes have the same legal weight as headings or subheadings. They are intended to:

- Define the scope of limits of a heading or subheading.
- Provide lists of goods excluded from a particular section.
- Provide lists of goods included in a particular section.

It is very important that notes be considered when classifying commodities.

J. Explanatory Notes are contained in a separate four-volume, 1,620-page "official" explanation of what was intended by the GRIs, section and chapter, notes and headings. These notes provide the authoritative source for technical definitions, some of which were used in this section.

11.3 THE ENTRY PROCESS

Basically, entry is a two-step process. First, file the documents to allow the merchandise to be imported. Second, file the documents that will allow Customs to assess exempt the merchandise from duty and obtain the following statistical information.

A. Within 5 working days of the date of arrival of a shipment at a United States Port of Entry, (this may vary from port to port) entry documents must be filed unless an extension is granted. These documents are:

1. Entry and Manifest of Merchandise Free of Duty, Customs Form 7523, or Application and Special Permit for Immediate Delivery, Customs Form 3461, or other form of release required by the District Director of Customs. See 19 CFR m141.61. An Entry Summary, Form 7501 may be filed if the necessary required documents and information needed to complete the form are available within the 5 days or a CF3311, if applicable.

2. Evidence of the right to make entry as the Importer of Record is required. Presentation of shipping papers and invoices in the name of the importer is usually suffic

Although no commercial invoice is required, some evidence of value and description of the merchandise for statistical purposes must be presented to Customs. *NOTE:* 19 CFR 141.83 - "Merchandise consigned to or entered in the name of DOE". Some sites noted that it is better to have an invoice than evidence of value and description

4. Packing lists, if appropriate.

5. Other documents necessary to determine merchandise admissibility, such as a cost of production statement, an NRC license, a stipulation or certificate by DOE or the contractor, etc.

6. Following acceptance of the entry, the shipment is examined, or examination is waived and released.

B. When goods are released from Customs custody on entry documents, an Entry Summary Form 7501 must be filed and duty paid at the port of entry within 10 working days of the time the goods are entered and released (or for DOE billed later). Many contractors dispense with entry documents by filing the entry summary within 5 days. Additional information is required on the entry summary when importing petroleum products in bulk. See 19 CFR 151.41 for details.

If there is a failure to file an entry for goods in a timely manner, Customs may place them in a general order warehouse at the expense and risk of the importer.

11.4 MAIL AND INFORMAL ENTRIES

Some contractors find it advantageous to use the mails to import low-valued merchandise provided:

- The shipment does not exceed the size and weight limitations of the exporting country.

- The merchandise does not exceed $2,000 in value, except for certain classes of textiles, wood products, wearing apparel, plastic or rubber articles, agricultural products, and products of the seas, on which the limit is $250. These exceptions are listed in Sections II, VII, IX, and XI of HTSUS.

The duties on parcels not exceeding the dollar limits above are collected by the letter carrier or, if for DOE, the parcel may be released upon arrival if accompanied by the stipulation explained in Chapter 11, Section 11.1, of this manual. The stipulation can be sent to the foreign vendor with the order. No entry is required on duty-free merchandise not exceeding $2,500.

The vendor should be instructed to mark the package with the country of origin and enclose two copies of a commercial invoice with the mark "Invoice Enclosed." If the parcel is sealed it should be marked "May be opened for Customs purposes before delivery." Certain types of merchandise such as wood products and textiles require other marks, but DOE contractors do not usually import such commodities (19 CFR 145). The same dollar limits apply to certain classes of merchandise eligible for informal entry (19 CFR 143.21).

11.5 POWER OF ATTORNEY

When entry is made by a customshouse broker, a Customs power of attorney (Form 5291) given by the firm for which the broker is acting as agent should be made (19 CFR 141.46). The best evidence of the authority of an employee to make entry for his or her employer is a Customs power of attorney. Generally, however, Customs will also accept the signature of a traffic officer of the importing corporation if it is well known. DOE field offices may delegate to a contractor employee the authority to act for DOE by writing Customs at the port of entry on DOE letterhead.

11.6 EXAMINATION OF GOODS (19 CFR 151)

Prior to release of the goods, Customs may designate a representative quantity for examination or may waive examination for DOE. Examination is necessary to determine:

- The value of the goods and their dutiable status.
- That the goods were properly marked especially if the regulations require special markings or labeling (19 CFR 11).
- Whether or not the shipment contained prohibited articles (19 CFR 145, Subpart E).
- That the goods are correctly invoiced.
- Whether or not the goods are over/short from invoiced quantities.
- That the tare weight allowance appears to be reasonable on goods assessed duty based on weight (19 CFR 159, Subpart B).

11.7 THE COMMERCIAL INVOICE

A commercial invoice, prepared in accordance with 19 CFR 141.86, and signed by the seller, shipper, or their agents is acceptable. The invoice must contain the following information:

- Port of entry to which the merchandise is destined.
- Names of buyer and seller (or shipper and receiver) and time and place of sale.
- A detailed description of the merchandise, including marks.
- The quantities in weights and measures of the United States or exporting country and number of packages.
- Purchase price in the currency of the sale.
- The kind of currency.

- All charges upon the merchandise itemized by name for freight, insurance, commission, and all other expenses for bringing the merchandise alongside the carrier at the first port of entry. Packaging and inland freight in the foreign country need not be itemized if included in the invoiced price.

- All rebates, drawbacks, bounties, discounts, separately itemized.

- Additional information for certain classes of merchandise (19 CFR 141.89).

- Invoices and attachments in English or accompanied by a translation.

Note: Some contractors instruct procurement staff to require the HTS number be listed on the invoice to expedite verification of the classification.

11.8 OTHER INVOICES

When the required commercial invoice is not available at time of entry, a pro forma invoice executed by the importer may be substituted by posting a bond against production of the invoice for statistical purposes within 50 days but not later than 6 months from date of entry.

A special summary steel invoice in duplicate is required on certain iron and steel products with an aggregate purchase price of $5,000 or more from contiguous countries or $10,000 from other countries. This invoice must accompany the entry summary. See 19 CFR 141.89 for details. In addition to the special steel invoice required by United States Customs, some countries like Japan control exports of steel in any quantity to the United States by issuing a special export license.

11.9 CUSTOMS DUTY

All goods imported into the United States are subject to duty or duty-free entry according to their classification in HTSUS.

Duty varies by country, as reflected in the three columns headed "Rates of Duty" in HTSUS. Column 1 affords preferential duty status to United States trading partners under Most Favored Nation (MFN) status; Column 2 levies high statutory rates on imports from non-MFN nations; and the "Special" column reflects free or minimum-duty rates to promote the development of the economies of friendly or Third World nations.

The rates in the "Special" column reflect the following preferences:

Generalized System of Preferences . . . . . A or A

Automotive Products Trade Act . . . . . .B

Agreement on Trade in Civil Aircraft C

North American Free Trade Agreement

Goods of Canada, under the terms of
general note 12 to this schedule. . . . . .CA

Goods of Mexico, under the terms of
general note 12 to this schedule . . . . . MX

Caribbean Basin Economic Recovery Act . . . . .E or E

U.S.-Israel Free Trade Area IL

Andean Trade Preference Act . . . .J or J

Agreement on Trade in Pharmaceutical Products . . . . . K

Uruguay Round Concessions on Intermediate
Chemicals for Dyes L

Using HTSUS Item 8205.10.00, "drilling, threading and tapping tools," as an illustration, Column 1, General Rates, would be 6.2% ad valorem, Column 1, Special Rates, will indicate countries A, E, IL, J, MX duty free (CA, 1.8% ad valorem), Column 2 would be 45% ad valorem. To claim exemption from duty, see 19 CFR10.172, which requires a certificate of origin. Countries afforded duty-free status may not produce the type or quality of products that would attract DOE or contractor buyers. See 19 CFR 10.171-10.198 for the Generalized System of Preference and the GRI and notes in HTSUS.

11.10 DRAWBACK - REFUND OF DUTY

A 99% refund of duty is allowed for any imported merchandise found not to conform to specification or shipped without consent of the consignee. Rejected merchandise should be returned to Customs for examination and exported within 90 days of its release unless an extension is granted. See 19 CFR 191 for details on this and other types of drawbacks. Apply for a drawback on Customs Form 7539 supported by Customs Form 7511 and the shippers export declaration.

11.11 TEMPORARY IMPORTATION UNDER BOND (TIB)

Section XIII, Chapter 98 of HTSUS admits certain articles into the United States duty free for a period of 1 year. A bond in the amount of double the estimated duty must be posted. Of interest to DOE and its contractors might be Item 9813.00.51 "Professional equipment, tools of the trade, repair components for such equipment," which are duty free. TIB is sometimes useful, but generally more trouble than of value.

11.12 ADMISSION TEMPORAIRE-TEMPORARY ADMISSION (ATA) CARNETS

ATA stands for the combined French and English words Admission Temporaire-Temporary Admission. A carnet is an international customs document that may be used for the temporary admission of professional equipment, commercial samples, and advertising material. Carnets can be used in any country that is a United States trading partner and certain others that have

accepted the ATA convention. In the United States, carnets are issued by the U.S. Council of the International Chamber of Commerce, 1212 Avenue of the Americas, New York, NY 10036. There is a fee for issuing the carnet and guarantee against the payment of Customs duties. The term is 1 year, not renewable. Carnets are considered to be more effort than useful.

An

Contracts)] or the Incoterms of 1980 (a listing of internationally accepted trade terms). Use of non-standard terminology can lead to misunderstandings and assumption of risk. Anyone dealing in foreign trade must have a full understanding of metric measurements and their conversion to U.S. standards.

11.16 FINANCING IMPORTS

Most DOE contractors have credit ratings that enable them to purchase foreign goods on open account often through a distributor in the United States. Other methods involve using banks as collection agencies.

The most secure method of collection is through an irrevocable letter of credit, which the importer opens with a United States bank. The foreign bank, acting as correspondent for the United States bank, will remit to the seller when the terms of the letter of credit are satisfied. Usually the seller draws a draft, attaches the necessary clearance documents, and sends the draft through the foreign bank for payment. Once payment is made there is no recourse against the seller.

If a business relationship exists between the parties, the seller may depend on a sight draft or time draft (30, 60, or 90 days) to affect collection. The seller attaches the necessary clearance documents and forwards the draft with a collection letter through the correspondent banks with instructions to transfer title when the buyer has satisfied or guaranteed payment.

11.17 DUTY-FREE ENTRY OF SCIENTIFIC INSTRUMENTS OR APPARATUS

Item 9810.00.60 of HTSUS provides for duty-free importation of instruments and apparatus "entered for the use of any nonprofit institution whether or not public or private established for educational or scientific purposes...if no instrument or apparatus of equivalent scientific value...is being manufactured in the United States" (15 CFR 301.1). This item is useful depending on material value and generally there is no way of knowing a particular instrument or apparatus is manufactured in the US. It should be noted that many sites (transportation groups) are not notified in advance that an import is coming and have no recourse but to go through the normal process and pay the duty.

Applications must be made on Form ITA-338P, which may be obtained from the Statutory Import Staff, International Trade Administration, U.S. Department of Commerce, Washington, DC 20230 (15 CFR 301.3). Applications may be filed by eligible persons who have placed a bona fide order for the article or who intend to place a bona fide order within 60 days after decision on the application becomes final. For DOE, an eligible person can be a *cognizant* official of the Department. However, a contracting officer of the field office having jurisdiction is preferred.

The application is filed with the U.S. Customs Service at the address shown on page 1 of the application. Customs reviews the nonprofit status of the applicant in the current edition of "Cumulative List of Exempt Organizations," or verifies that the applicant is an agency of the United States Government involved in educational or scientific work. Customs assigns numbers to the application and also verifies that the instrument or apparatus falls within the class eligible for duty-free entry in the United States, notes to Subchapter X, HTSUS. It is important to justify domestic non-availability not just with such a statement, but also with a

detailed description of the instrument or apparatus on the application. Such detail is necessary to enable Customs to make its determination as to eligibility for duty-free entry and to avoid a protest from domestic suppliers when the application is posted for public inspection.

Customs assigns a number to the application and forwards one copy to the Secretary of Health and Human Services, the original and one copy to the U.S. Department of Commerce (DOC), keeps a file copy, and returns one copy to the applicant stamped "Accepted for Transmittal to the Department of Commerce."

The DOC posts a copy for public inspection at its Washington, DC, offices within 10 days of receipt and publishes a notice in the Federal Register. If no adverse comments are received within 20 days, the application will be approved.

In the meantime, the copy returned to the applicant stamped "Accepted for Transmittal" may be used with the other entry documents to avoid a deposit of estimated duty. Liquidation will be suspended for 180 days pending approval of the application.

When the imported instrument reaches the port of entry, claim must be made by the importer for duty-free entry under HTSUS Item 9810.00.60 at the same time a bond, a deposit, or, in the case of DOE, a stipulation must be posted against payment of duty should the application be denied. If no such claim is made, the instrument will be classified without regard to Item 9810.00.60 and duty will be assessed and entry liquidated in the usual manner. See 15 CFR 301 for these details.

It is therefore recommended that Form ITA-338P be executed before the order is placed.

The names of commercial firms who are DOE contractors may not be shown as either the purchaser or the consignee except that the instrument may be shipped to DOE in care of such contractor.

11.18 NUCLEAR EQUIPMENT AND MATERIAL IMPORT PROCEDURES

Imports of nuclear materials into the United States are controlled by the following statutes and regulations in addition to those of the Customs Service:

- *Atomic Energy Act of 1954*, as amended
- *Nuclear Non-Proliferation Act of 1978*
- 10 CFR 110, "Export and Import of Nuclear Equipment and Material"
- 49 CFR 171.11, "Use of ICAO Technical Instructions," 49 CFR 171.12, "Import and Export of Shipments," and 49 CFR 171.12a, "Canadian Shipments and Packaging."

10 CFR 110.27 addresses imports as follows:

A General License is issued to any person to import byproduct, source, or special nuclear material, other than 100 kilograms or more of irradiated fuel, if the consignee is authorized to

possess the material under: (a) a contract with the U.S. Department of Energy or (b) an exemption from licensing requirements issued by the Commission, or a general or specific license issued by the Commission or a State with which the Commission has entered into an agreement under Section 274b of the *Atomic Energy Act*. Importers of special nuclear material under this General License shall provide advance notification of imports to the Commission as specified in 10 CFR 73.27.

"Person" in 10 CFR 110.2 is defined as: "any individual, corporation, partnership, firm, association, trust, estate, institution, group, Government agency other than the Commission (NRC) or, with respect to imports, the Department of Energy..."

The Department is therefore exempt from the provisions of Part 110 of 10 CFR and exercises its own import controls through the Office of Nuclear Non-Proliferation Policy (NN-40). This office approves the import with the concurrence of the Office of Security Affairs (DP-323.1) after a noninimical (non-hostile) determination, if required.

DOE imports of special nuclear materials (SNM), source, or byproduct materials as a government-to-government shipment require the authorization of NN-40 on Form MB#4 shown as Figure 23. This form must be presented to Customs at the port of entry with the other entry documents, or Customs will frustrate the shipment until some authority for entry is produced.

Form MB#4 may be executed by a field office, a DOE contractor as directed, or by the foreign exporter and submitted to NN-40 for approval after coordinating the details with each other. If DOE-owned material, the control number will be the foreign contract number that was assigned when the material was exported. After the approved Form MB#4 has been distributed to the parties by NN-40, contract negotiations can be finalized. If foreign-owned material, the contract should state disposition of the material upon completion of use.

Preparation and filing of entry documents and transportation arrangements from the port of entry are the responsibility of the receiving contractor. The contractor may deal directly with Customs or through a customshouse broker. Inland transportation is subject to those parts of 49 CFR referenced in Chapter 11, Section 11.18, of this manual.

Upon receipt, the receiving contractor will execute a 741 Form (See DOE Order 5566.3B, Control and Accountability of Nuclear Materials). The Nuclear Materials Management and Safeguards System (NMMSS) contractor will enter the transaction into the International Nuclear Material Tracking System upon receipt of its copy.

CHAPTER 12

EXPORTING FROM THE UNITED STATES

12.1 INTRODUCTION

The movement of goods internationally requires specialized knowledge in documentation and logistics. Inexperienced personnel must rely on more skilled DOE personnel or on the advice of a foreign freight forwarder until the necessary expertise can be acquired through training and experience. DOE preference is to avoid additional costs by exhausting internal DOE/contractor resources before resorting to freight forwarders. This should include contacting experienced personnel at other sites that may have specific expertise. Various organizations publish and sell guides that are helpful, such as:

- A Basic Guide to Exporting
- A Reference Guide to the Export Administration Regulations. (Explains licensing and the commodity control list.)
- The Official Export Guide published by North American Publishing Company, 401 North Broad Street, Philadelphia, PA 19108.

Current regulations, directives, publications, training classes and other information to assist you with exporting are available on the following web sites.

Department of Commerce, Bureau of Export Administration at: **http://www.bxa.doc.gov**

Office of Defense and Trade Security Controls at: **http://www.almc.army.mil/schools/sls/demil/home.htm**

U.S. Customs Service at: **http://www.customs.treas.gov/**

Nuclear Regulatory Commission at: **http://www.nrc.gov/NRC/reference.html**

Exports of commodities, software, and technology are subject to the licensing requirements of the Department of Commerce (15 CFR 730-774), the Nuclear Regulatory Commission (10 CFR 110), the Department of State (22 CFR 120-130), or Department of Energy (10 CFR 810). Department of Commerce controls exports of material, equipment, and technology not controlled by the Departments of State and Energy and Nuclear Regulatory Commission. The Department of State controls defense articles and defense services under the International Traffic in Arms Regulations. The Nuclear Regulatory Commission controls the exports of commodities related to nuclear reactor vessels, including nuclear materials. The Department of Energy controls the export of technology related to the production of special nuclear materials. This section briefly covers exports under the jurisdiction of the Department of Commerce. Traffic personnel will not be involved in all aspects of the export but should understand the overall procedures and where to go for assistance.

12.2 THE COMMERCIAL TRANSACTION

In a commercial transaction the seller offers a product at a given price to the buyer at some geographic location. In turn, the buyer agrees to purchase the product at the stated price and to take title at the point agreed upon. Each has certain responsibilities to carry out according to the terms of sale (Ch 2, 2.5). Regarding foreign trade definitions see Chapter 11.15. Depending upon the skills of the principals, some responsibilities may be discharged by the principals and some may be contracted to a carrier or a foreign freight forwarder.

12.2.1 Licenses

Export licensing determinations are based on:

- classification of the commodity,
- country of ultimate destination,
- ultimate end-user
- conduct of the end-use, and
- conduct of the end-user (are they supporting proliferation project)

If a determination is made that a license is required, a License Exception may be available which allows, under the Export Administration Regulations, export of commodities under a stated condition. A complete description of License Exceptions are in 15 CFR Part 740.

Several license exceptions are listed below:

LVS - authorizes certain exports of limited value
CTP - authorizes certain exports of computers
TMP- authorizes certain temporatry exp
RPL - authorized for service and replacement parts and equipment
GOV- authorizes exports for international nuclear safeguards; US government agencies or personnel, and agencies of cooperating governments.
TSU - used for certain exports of technology and software that is unrestricted
TSR - authorized certain exports of restricted technology and software.

12.3 ADMINISTRATIVE CONTROLS

The following regulations and lists will assist in exporting non-defense, non-nuclear commodities, software and technical data from the US:

- 15 CFR 700-774, Export Administration Regulations, and 15 CFR Paart 30, SED Requirements

- Harmonized Tariff Schedule of the United States (HTSUS). This publication is designed to enable importers, customs brokers, customs officers and other interested persons to determine (1) classification of and rates of duty applicable to imported

articles and (2) requirements for reporting statistical data with respect to such imports. Except as specified in the Notice to Exporters, this publication may also be used in place of the reporting codes of Schedule B for reporting exports on the Shipper's Export Declaration or under the program for electronic reporting of exports.

- Schedule B: there are millions of trade transactions occurring each year. These transactions are classified under approximately 8,000 different products leaving the US. Every item exported is assigned a unique 20 digit identification code. Schedule B contains these codes. Schedule B can be found at: **http://www.census.gov** and click on Foreign Trade.

12.4 QUOTATIONS AND PRO FORMA INVOICES

Only the seller can make a price quotation, which can be in various forms: telephone, cable, letter, or a pro forma invoice. In order to accumulate all of the charges that will be applicable to shipments to the buyer's country, the seller must develop the import requirements of that country. A consulate of the buyer's country is one source. Another is the Export Shipping Manual published by the Bureau of National Affairs, Inc. (BNA).

If the seller is making frequent quotations involving ocean freight, a quotation worksheet is recommended.

If a Cost, Insurance, Freight (CIF) pro forma invoice is requested, it may be prepared on the firm's letterhead. As each article is priced and extended, enter directly below the dimension of each package in centimeters or meters, then the cube of each package in meters and the weight in kilograms plus totals. Total the merchandise to a Free On Board (F.O.B.) origin price, then add international transportation, forwarders' fees, and insurance to determine a CIF destination price. If the article is to move via ocean freight, a breakdown of the elements that comprise the international freight total is necessary. Forwarding fees may be grouped as a total. Some countries require a certification in the language of that country. The pro forma invoice must be prepared with great care because the letter of credit, the purchase order, and the credit documents each reflect details contained in the pro forma invoice. When the commercial invoice is issued it should be an updated version of the pro forma invoice, and should reflect actual shipping information plus package markings and other information supplied by the buyer such as the purchase order number, import license number, and dates.

12.5 INSTRUMENTS OF PAYMENT

See Chapter 11, Section 11.16, for credit documents used in foreign trade. For exports the procedure would be the reverse of that shown for imports. Anyone dealing regularly in drafts or letters of credit should secure the following publications from the International Chamber of Commerce, 1212 Avenue of the Americas, New York, NY 10036:

- Publication No. 322, "Uniform Rules for Collections"
- Publication No. 400, "Uniform Customs and Practice for Documentary Credits."

Credit documents are not usually the province of traffic personnel except to the extent that they contain transportation information. It should be noted that letters of credit create problems and while they are acceptable, they are generally not worth the effort involved.

12.6 FOREIGN IMPORT LICENSES

Foreign countries control and license the importation of goods for several reasons: shortage of exchange dollars, protection of local industry, national security, and statistics for duty purposes. Some countries require the buyer to furnish a copy of the import license to the seller to be submitted to the consulate at the time the commercial or consulate invoices are visaed by the consulate (for a fee). Others require only that the license number and date be entered on the commercial invoice. Still others have no requirement other than issuance of the license to the buyer.

12.6.1 Import and End-Use Certificates

Refer to 15 CFR 775 for destinations requiring International Import certificates and End-Use Certificates to be furnished by the importing country and Delivery Verification Certificates to be secured by the exporter. End-use certificates are primarily used for radioactive materials.

12.6.2 Letters of Assurance

When exporting technical data, review 15 CFR 779 concerning the restrictions on licensing of technical data (including software) and specifically the requirement for a letter of assurance from the foreign importer that he/she will not knowingly re-export or otherwise disclose, directly or indirectly to certain country groups, any software or other technical data received from the exporter.

Note: Within the DOE there are also stringent regulations regarding the export and proliferation of information. Guidelines on the export of sensitive equipment, material, and information are contained in the "Interim Guidelines on Export Control and Nonproliferation." Additional information and questions regarding the nonproliferation of sensitive material and data should be directed to the Export Control Division, Office of Arms Control and Nonproliferation (NN-40) through your field element.

12.7 THE COMMERCIAL INVOICES

The commercial invoice is the final statement of the agreement between the seller and buyer. In the course of the transaction it will be examined by everyone party to the transportation and payment of the goods. Those involved in the transaction may be:

- The carrier or international freight forwarder (shipper’s Letter of Instructions is generally used with forwarders).

- The consulate of the buyer's country if required

- The seller's bank if not sold on open account
- The Customs officer in the buyer's country
- The buyer's bank
- The import broker
- The insurance company in event of loss. *Usually not required.*

If the seller does not make the agreement explicit on the commercial invoice, each of the above is free to make their own interpretation, not always in favor of the seller.

A common error that occurs on computer-created invoices is to designate the "ship to" address as that of the international carrier or freight forwarder. The "ship to" address should be the same as the consignee on the international bill of lading, which is usually the foreign bank or to order of the shipper. All import/export require some type of commercial invoice.

12.8 FOREIGN CUSTOMS INVOICES

Some countries require a customs invoice for use by foreign Customs officers. Standard Customs invoices are available at many stationers specializing in transportation forms and are not difficult to fill out. Customs invoices must be included with other entry documents.

12.9 CONSULAR INVOICES

The consular invoice can usually be purchased from the resident consulate. It usually must be submitted to the consulate for legalization or visa upon shipment. Latin American countries are the most frequent users of consular invoices. Consular invoices must be included with the other entry documents.

12.10 SHIPPER'S LETTER OF INSTRUCTIONS

A document issued by an exporter or importer instructing the freight forwarder to effect transportation and exportation in accordance with the terms specified in the letter of instructions. There are many forms of the shipper's letter of instruction. The freight forwarder may supply forms or the forms may be purchased from stationers specializing in transportation forms. There are several types: air direct, ocean containerization, and ocean pier to pier. The letter of instruction should state:

- Name of the ultimate consignee
- Name of the intermediate consignee, such as the foreign bank
- Number of pieces, type of packaging, and description of the goods in HSCH B vernacular; gross weight and dollar value by HSCH B number

- The port marks to appear on packages or containers
- United States license specifications, General (15 CFR 771), or Specific (15 CFR 772-775)
- A list of documents that accompany the letter
- Whether freight is prepaid or collect
- Any special instructions concerning completion and distribution of documents.

12.11 SHIPPER'S EXPORT DECLARATION

The Shipper's Export Declaration (SED), Department of Commerce Form 7525-V, is a statement from the exporter or his duly authorized agent that declares the existence of permission to export. This permission will be in the form of a validated export license number or a general license symbol. *DOE must comply with existing export requirements*.

A Shipper's Export Declaration must be completed for:

- All shipments from the United States exceeding $2,500 in value per HSCH B Number [15 CFR 786.1(c)(2)]
- United States mail shipments whose value exceeds $500 [15 CFR 786.3(f)(2)]
- All shipments of controlled commodities regardless of value (15 CFR 799)
- Cargo destined to restricted countries (15 CFR 785).

A Shipper's Export Declaration is not required for shipments under $2,500 in value except the following shipments made under validated license:

- Shipments from the United States made to Country Groups T and V if the total per HSCH B Number does not exceed $2,500 in value [15 CFR 786.1(c)(2)]
- Shipments requiring a DOC export license
- Shipments requiring a U.S. Department of State (DOS), Office of Defense Trade Controls export license under the International Traffic in Arms Regulations (ITAR), 22 CFR 121-130
- Shipments subject to ITAR but exempt from licensing
- Shipments requiring a Department of Justice, Drug Enforcement Administration export permit, 21 CFR 1312.

The SED provides the Bureau of the Census with data on exports. This data is compiled and published monthly to show what types of commodities are exported to different countries. The SED may also function as a regulatory document to control commodities for foreign policy, national security, nuclear non-proliferation, and short-supply reasons. See 15 CFR 786.3 for details. The SED is reproduced as Figure 25 together with instructions for completion. Once the SED is completed it is submitted with the air waybill or the ocean bill of lading to the carrier. The carrier attaches three copies of the SED to the manifest of the aircraft or vessel and submits them to United States Customs.

All parties exempt from filing a SED are required by the Bureau of the Census *Foreign Trade Statistics Regulations*, 15 CFR 30.50, to make a statement on the bill of lading, air waybill, or other loading document describing the basis for the exemption and referencing the specific section of the *Foreign Trade Statistics Regulations* where the exemption is provided.

12.12 BOOKING THE SHIPMENT

As soon as an actual shipping date can be established, the shipment should be booked with the international carrier as far in advance as possible, especially if the movement is to be on a vessel. Scheduling and knowledge of the carriers transit times are very important. This is particularly true if a letter of credit is used. The letter of credit has a specific expiration date that could run out while waiting for another ship if a sailing is missed, or a shipment misrouted. Shipments can be booked direct with the carrier or through a freight forwarder, however, DOE preference is to use internal expertise before going to outside sources.

12.13 INTERNATIONAL SHIPPING DOCUMENTS

Guaranteeing payment for material shipped internationally is often difficult. In instances where prepayment has not been made, a letter of credit negotiated, or satisfactory credit arrangements made, steps must be taken to insure payment.

Proper consignment is the key to insuring satisfaction of the draft. International air waybills differ from ocean bills of lading in that the air waybill is nonnegotiable. If consigned to the recipient, the recipient can take possession of the goods without paying the draft. An alternative is to consign the shipment to the buyer's bank and send the draft with the original air waybill and other entry documents to the bank for collection. Ocean bills of lading may be consigned either to the order of the shipper or foreign bank and title to the goods transferred by endorsement after the draft has been satisfied.

CHAPTER 13

UNITED STATES EXPORT CONTROL AGENCIES

13.1 TYPES OF EXPORTS CONTROLLED BY THE AGENCIES**

Table 13 - Exports Controlled by Agencies

Agency	Commodity or Service	Control Mechanism	Advisory Agencies
DOC	General merchandise	General License	Treasury
DOC	All dual-use commodities and technology**	Validated License	DOS, DOD, DOE, Treasury
DOS	Defense articles and services (OMC); Dual-use commodities (COCOM)	Validated License	DOC, DOD, DOE
NRC	Nuclear equipment and materials	Validated License	DOS, DOD, DOE, DOC
DOE	Nuclear materials, equipment technology; subsequent arrangements government-to-government foreign nuclear activities	Validated License or Noninimicality Determination	DOS, DOD, NRC, DOC

DOC = U.S. Department of Commerce
DOE = U.S. Department of Energy
DOD = U.S. Department of Defense
DOS = U.S. Department of State
NRC = Nuclear Regulatory Commission.

**Except for a small number of items licensed by other agencies that are not relevant here (e.g., alcohol, tobacco, and firearms under Treasury).

13.1.1 Regulatory Relationship Among the Agencies

The *Arms Export Control Act* (AECA) authorizes controls primarily on exports that are deemed to be inherently military in character or specially designed, modified or engineered for military applications. The AECA authorizes the control of exports of "defense articles and defense services to further world peace and the security and foreign policy of the U.S...." The State Department controls these defense articles and services under the *International Traffic in Arms Regulations* (ITAR), 22 CFR 120 et seq. The Office of Munitions Control (OMC) in the State Department determines which articles and services are deemed to be defense-related and lists them on the United States Munitions List, 22 CFR 121.1. Items on this list are regulated solely under ITAR.

Generally, NRC and DOE regulations take precedence over ITAR in the export of nuclear materials, services, and equipment; but the ITAR will take precedence over the

Export Administration Regulations (EAR) in the export of defense articles, related technical data, and defense services.

Most exports of commodities and technical data not controlled under ITAR are controlled under the EAR, 15 CFR 769 et seq. as authorized by the *Export Administration Act of 1979*. These regulations are administered by the Office of Export Licensing (OEL), the Bureau of Export Administration (BXA), and the U.S. Department of Commerce. A license under these regulations is required prior to exporting an EAR-controlled commodity or technical data out of the United States.

The regulatory relationship between the Department of Commerce's BXA and the Department of the Treasury's Office of Foreign Assets control (OFAC) can be confusing for exporters to understand. OFAC is the office primarily responsible for implementing broad economic sanctions against specific countries. OFAC controls participation by United States persons, including foreign subsidiaries in transactions, including imports and exports, with specific countries or nationals of such countries. By contrast, BXA controls exports and re-exports of United States origin items whether made by a United States or foreign person. Since both agencies possess export licensing autho

CHAPTER 14

EXPORT OF NUCLEAR MATERIALS BY THE U.S. DEPARTMENT OF ENERGY

14.1 NUCLEAR MATERIAL DEFINED

The DOE Office of Safeguards and Security designates the nuclear materials to be reported to the Nuclear Materials Management and Safeguards System (NMMSS). Export of the following nuclear materials must be reported to the NMMSS International Nuclear Materials Tracking System (INMTS). The INMTS is the international nuclear material tracking portion of the NMMSS:

Special Nuclear Material	Byproduct Material
Plutonium	Americium-241
Plutonium-238	Americium-243
Plutonium-242	Berkelium
Enriched Uranium	Californium-252
Uranium-233	Curium
	Neptunium-237
	Tritium

Source Material	Other Material
Normal Uranium	Deuterium
Depleted Uranium	Enriched Lithium-6
Thorium	

Exports of other byproduct materials (e.g., polonium-210) are not reported to NMMSS/INMTS.

In addition to the nuclear materials identified above, nuclear-grade graphite and nuclear equipment are also under export control.

14.2 ADMINISTRATIVE CONTROLS — NUCLEAR MATERIALS

Export of nuclear materials and technical data from the United States is controlled by the following statutes and regulations:

- *Atomic Energy Act of 1954*, as amended. See 15 CFR 770.10(e).

- *Nuclear Non-Proliferation Act of 1978* as administered by the Departments of State, Energy, and Commerce. This Act is implemented in 15 CFR 778, "Special Nuclear Controls."

- *Export Administration Act of 1979*, as amended.

- 10 CFR 110, "Export and Import of Nuclear Equipment and Material," NRC.

- 10 CFR 810, "Assistance to Foreign Atomic Energy Activities."

- 15 CFR 700-799, "Export Administration Regulations." Bureau of Export Administration, Department of Commerce. Parts 768-799 are also available in a looseleaf edition.

- HSCH B, "Statistical Classification of Domestic and Foreign Commodities Exported from the United States."

- "Amendment to Procedures Established Pursuant to the Nuclear Non-Proliferation Act of 1978," *Federal Register*, Vol. 49, No. 96, May 10, 1984, pages 20780-20786, amended by Vol. 58, No. 33, February 19, 1991, page 6791.

- DOE Order 5633.5, *Nuclear Materials Reporting and Data Submission Procedures*.

14.3 PACKAGING AND TRANSPORT REGULATIONS

Effective January 1, 1991, all international shipments of hazardous materials by air or water must comply with the UN packaging recommendations for non-bulk commodities:

- International Air Transport Association (IATA) Restricted Articles Regulation published by the IATA of Quebec, Canada.

- Regulations for the Safe Transportation of Radioactive Materials, Safety Series 6, issued by the International Atomic Energy Agency (IAEA) of Vienna, Austria. See 49 CFR 171.12 for authority to use IAEA regulations to the port.

- Technical instructions for the "Safe Transport of Dangerous Goods by Air," approved and published by the International Civil Aviation Organization (ICAO) of Montreal, Quebec, Canada. See 49 CFR 171.11 for authority to use ICAO Regulations, with certain exceptions for inland transportation to the port.

- *International Maritime Dangerous Goods Code*, 1988, as amended, published by the International Maritime Organization of London, England, for exports by sea.

- "Transportation of Dangerous Goods" issued by the government of Canada. See 49 CFR 171.12a.

See also DOE 5480.3A Chapter VI for approvals, certificates of Competent Authority, U.S. Department of Transportation (DOT) validation of foreign packages, special form certifications and notifications necessary to ship.

14.4 GENERAL DOE/NRC EXPORT CONTROLS

Export of DOE nuclear materials as a government-to-government shipment under a U.S. Agreement for Cooperation with a foreign country requires two or more of the following controls according to the type and quantity to be exported:

- DOE Office of Nuclear Non-Proliferation Policy, NN-40 approves shipment.
- DOE Office of Security Affairs, DP-323.1 concurs in approval upon a noninimicality determination.
- NRC specific export license.
- NRC General License (applicability determined by DOE NN-40).
- Tracking by the INMTS.

Field organizations must seek and obtain DOE NN-40 approval prior to contract negotiations with foreign entities that involve, by any means whatsoever, the distribution of one (1) kilogram quantity or greater of the following materials: uranium enriched in U-235 to 20% or greater, plutonium, U-233, or heavy water.

All requests for Government distributions (also known as government-to-government shipments) for source, special nuclear, byproduct material, or heavy water, except those involving byproduct material, which are under a General License for export by NRC under 10 CFR 110.23, must be submitted to DOE NN-40 for approval.

DOE export of tritium in quantities greater than 37 TBq (1,000 curies) or lithium-6 in quantities greater than 500 grams to any country must be referred to DOE NN-40 for approval prior to execution of a contract. DP-323.1 must also make a finding of noninimicality.

14.4.1 NRC General Licenses (DOE NN-40 Authorized)

A General License (blanket permission) is issued to DOE and its contractors by NRC to export certain quantities of material that fall within the provisions of 10 CFR:

110.21, "Export of Special Nuclear Materials."

110.22, "Export of Source Material."

110.23, "Export of Byproduct Material."

110.24, "Export of Deuterium."

110.25, "Export of Nuclear Grade Graphite."

110.26, "Export of Nuclear Reactor Components."

Embargoed destinations are Cuba, Kampuchea, North Korea, and Vietnam (110.28). Restricted destinations are listed in 10 CFR 110.29.

Field offices and contractors may not export nuclear materials in any quantity under a General License without a determination from DOE NN-40 that a General License does apply. In some instances concurrence by DOE DP-323.1 is required. Byproduct material with atomic numbers 3 to 83 are exempted and may be shipped under General License without DOE IE-13 approval.

14.4.2 NRC Export Licensed Shipment

Both an NRC license and DOE NN-40 authorization are required to export quantities of SNM and source materials that exceed the General License limits listed in 10 CFR 110.21 and 110.22. Byproduct material does not require an export license when exported by DOE. Field organizations may delegate the responsibility to the contractor for filing an application directly with NRC. Application must be made on Form NRC - 7 according to instructions shown in Appendix IX, 10 CFR 110.

NRC will return the approved license to the applicant with eight conditions to be followed. When the contractor is the applicant, distribution of copies is made by local procedure and may include:

- Operations Office Nuclear Materials Management Coordinator, Traffic Manager, and program office.
- Contractor's program office.
- DOE-Headquarters (HQ) NN-40.
- INMTS.
- DOE-HQ Program Sponsor or NRC Program Sponsor.

Upon shipment, the contractor completes the SED and Form 741, referencing both the foreign contract number and the NRC license number as follows:

	SED	FORM 741
Foreign contract number	Block 14	Block 15
NRC License	Block 21	Block 16

In addition to normal distribution, a copy of the 741 Form should be sent to the NMMSS contractor for entry into INMTS.

The contractor should complete the appropriate shipping documents, attach the SED and other appropriate supporting papers, and release the shipment. If one shipment completes the NRC license, the original copy may be included with the shipping

papers. Customs will return the license to NRC; otherwise, a copy may be included and the original returned to NRC after the last shipment has been made.

14.4.3 Exports Not Requiring a License

For a government-to-government export approved by DOE NN-40 that does not require a validated license from NRC according to 10 CFR 110, the SED becomes the control document for INMTS. A special SED number must be assigned. The SED should be prepared in the same manner as for a licensed shipment except that "Exempt 10 CFR 110.1" or other appropriate entry should be entered in Block 21 as the authority to export. In addition, an SED continuation sheet should be prepared as follows:

1. Certification Statement

   I certify that the shipment described in this Shipper's Export Declaration as a government-to-government shipment, which does not require a validated license from the Nuclear Regulatory Commission.

   _____(Signature)____ _____
   *Name: Date
   Title:
   Organization:

   (The best signator of this document is that of an officer in the Operations Office having jurisdiction).

   *This information should be typed or printed on the SED.
   (See INMTS Data Collection Procedures for the following:)

2. Special SED number.

3. Foreign contract number assigned by INMTS.

4. Nuclear material (NM) description:

   Physical form
   Chemical form
   Material type (in code)
   NM element weight
   Isotope weight percent
   Isotope weight
   NM compound weight (if available)
   Hardware and/or instrumentation

5. End-use statement.

6. Final disposition of the material upon completion of use at the foreign site.

7. Shipped for DOE by _____(enter contractor's name)_____

14.5 INTERNATIONAL NUCLEAR MATERIAL TRACKING SYSTEM

Tracking of nuclear material exports is done using INMTS by the NMMSS contractor. Information is furnished by field installations through copies of material supply contracts, export licenses, Shipper's Export Declarations, and Form 741. Foreign entities report movement from one Agreement for Cooperation entity to another on DOE F-5660.2 and SER 2. See 10 CFR 110.6, "Retransfers."

The initial data entry is from the application for a foreign contract number from field offices, later updated from a copy of the executed contract.

For shipment control purposes, INMTS uses the specific export license number, a General License notation, a special Shipper's Export Declaration number (government-to-government) or the term "LIC-EXEMPT." Each field office maintains its own series of Shipper's Export Declaration numbers using the first two letters of the RIS symbol for identification. Albuquerque, for example, should be SED-AA-1. Assignment of numbers may be delegated to the contractor.

For additional information, see "Data Collection Procedures, International Nuclear Material Tracking System," Oak Ridge Operations, which is reproduced as Appendix VII.

14.6 U.S. DEPARTMENT OF COMMERCE LICENSES

The Bureau of Export Administration within the DOC maintains a Commodity Control List (CCL), which includes all commodities subject to DOC controls but does not include those commodities exclusively controlled by other Government agencies such as NRC and DOE.

Table 14 - Department of Commerce Commodity Control List

Commodity Group Number	Commodity Groups
0	Metal-working machinery
1	Chemical and petroleum equipment
2	Electrical and power-generating equipment
3	General industrial equipment
4	Transportation equipment
5	Electronics and precision equipment

6	Metals, minerals, and their manufactures
7	Chemical, metalloids, petroleum products, and related materials
8	Rubber and rubber products
9	Miscellaneous

Each individual entry is preceded by a four-digit Export Control Commodity Number (ECCN) and a code letter. The first digit relates to the strategic level of control, the second is the Commodity Group Number, and the next two digits identify related commodities in numerical order within a group. The letter suffix identifies the country groups for which a validated license is required.

Countries are grouped by letter designation in Supplement 1 to 15, CFR 770. For example "Z" represents North Korea, Vietnam, Kumpuchea, Iraq, Iran, Libya, and Cuba, all of which are embargoed. Canada has no letter designation and is referred to by "name" in the regulations.

Each ECCN entry contains the following information:

- Unit report in dollar value
- Validated license required by country groups
- GLV dollar value limit on low-value shipments by countries
- Processing code (two letters) required on license application
- Reason for control
- Special licenses available
- Special controls (when applicable)

Some examples of controlled commodities by groups are:

Group 2-ECCN 3261A	"Neutron generating systems."
Group 3-ECCN 4360A	Centrifugal balancing machines.
4363B	Nuclear power plant related equipment.
Group 5-ECCN 1522A	Lasers and laser systems.
4530-B UF	6 mass spectrometers.
1564A	Printed circuit board, substrates and microcircuits.
1565A	Electronic computers.
Group 6-ECCN 3670A	Lithium enriched in the 6 isotope.

36988B	Depleted uranium as shielding.
Group 7-1715A Boron;	
1754A	Fluorocarbon compounds.

Contractors who export scientific equipment, non-nuclear materials, and equipment related to nuclear work, and dual-use equipment or technology should review 10 CFR 810, 15 CFR 778.3, and 15 CFR 799 before making a shipment. If unable to find the proper entry, the contractor may consult with the Exporters' Service Staff, Bureau of Export Administration, Department of Commerce, Washington, DC, or the Chief of Export Control, DP-323.1, U.S. Department of Energy, Washington, DC 20585.

If the export consists of equipment or a device containing nuclear material, the equipment or device would require a DOC license, while the contained nuclear material would require an NRC license. Exports of nuclear-related technology may require both a DOC license and a DOE 10 CFR 810 noninimicality determination.

Applications for a DOC license, Form BXA 628P, must be made on Form BXA 622P. It should be filed directly with DOC with a copy to DP-323.1 for advance notice and review. This procedure will provide DP-323.1 some insight into the export activities of the various program offices and assist in directing any concerns or inquiries that may arise from other agencies to the appropriate DOE office. 15 CFR 778, Supplement 1 for "Procedures Established Pursuant to the *Nuclear Non-Proliferation Act of 1978*," contains procedures for considering the application and resolving disputes. A 1991 amendment to the Act restricts consideration by the Subgroup on Nuclear Export Coordination (SNEC) to 90 days for approval or rejection. See the Forms Supplement, pages 3-35, to the Export Administration Regulations for a facsimile of a completed Form BXA 622P and other BXA or ITA forms that might apply to a particular export.

14.7 CANADIAN CUSTOMS DUTIES AND EXCISE TAXES

Nuclear materials and related equipment shipped to Canada for experimental purposes under a joint agreement for cooperation are exempt from Canadian Customs duties and taxes. Attach the following certification to the Canadian Customs Invoice:

"I hereby certify that the articles or goods herein described are or will become the property of the Government of the United States of America and are to be used solely and exclusively in joint Canada-United States projects or United States Government establishments in Canada and are exempt from Customs duties and excise taxes." In accordance with ORDER-IN-COUNCIL P.C. 1960-1600.

_____

Project or Contract Identification

_____

Exporter
For the U.S. Department of Energy